



**United States Government Accountability Office**  
**Washington, DC 20548**

April 26, 2010

Congressional Committees

**Subject: *Defense Infrastructure: Department of Defense Renewable Energy Initiatives***

This letter formally transmits the enclosed briefing in response to section 2846 of the National Defense Authorization Act for Fiscal Year 2010. The act required the Comptroller General to report on the Department of Defense's renewable energy initiatives, including projects involving the installation of solar panels.

We are sending copies of this report to the appropriate congressional committees. We are also sending copies to the Secretary of Defense; the Secretaries of the Army, Navy, and Air Force; and the Commandant of the Marine Corps. The report will also be available at no charge on the GAO Web site at <http://www.gao.gov>.

Should you or your staff have any questions concerning this report, please contact Brian J. Lepore at (202) 512-4523 or [leporeb@gao.gov](mailto:leporeb@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report.

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Enclosure

<b>Report Documentation Page</b>			Form Approved OMB No. 0704-0188	
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1. REPORT DATE <b>26 APR 2010</b>	2. REPORT TYPE	3. DATES COVERED <b>00-00-2010 to 00-00-2010</b>		
4. TITLE AND SUBTITLE <b>Defense Infrastructure: Department of Defense Renewable Energy Initiatives</b>			5a. CONTRACT NUMBER	
			5b. GRANT NUMBER	
			5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)			5d. PROJECT NUMBER	
			5e. TASK NUMBER	
			5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>U.S. Government Accountability Office, 441 G Street NW, Washington, DC, 20548</b>			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)	
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>				
13. SUPPLEMENTARY NOTES				
14. ABSTRACT				
15. SUBJECT TERMS				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT <b>Same as Report (SAR)</b>	18. NUMBER OF PAGES <b>89</b>
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>	19a. NAME OF RESPONSIBLE PERSON	

*List of Committees*

The Honorable Carl Levin  
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The Honorable John McCain  
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Committee on Armed Services  
United States Senate

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Committee on Appropriations  
House of Representatives



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## **Defense Infrastructure: Department of Defense's Renewable Energy Initiatives**

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### **Briefing for the Committees on Armed Services, United States Senate and House of Representatives**

**April 26, 2010**

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## Background

The National Defense Authorization Act for Fiscal Year 2010<sup>1</sup> directed GAO to submit a report describing all of the Department of Defense's (DOD) renewable energy initiatives, including projects involving the installation of solar panels, that are currently producing energy or are under development on military installations.<sup>2</sup> In addition, the report was to include (1) the costs associated with each renewable energy initiative, (2) whether the renewable energy initiative has a clearly delineated set of goals or targets and whether the goals or targets are being met or are likely to be met by the completion of the initiative, and (3) recommendations for legislative or administrative actions.

<sup>1</sup>Pub. L. No. 111-84, § 2846 (Oct. 28, 2009).

<sup>2</sup>The report is required 180 days after the enactment of the Act (by Apr. 26, 2010).



## **Background**

### **DOD Goals for Renewable Energy Initiatives**

Existing laws and an executive order direct federal agencies to increase their use of renewable sources of energy such as solar and wind power.

- The Energy Policy Act of 2005 and its implementing guidance directs that, to the extent economically feasible and technically practicable, 3 percent of the electrical energy consumed by federal agencies in fiscal years 2007 through 2009 come from renewable energy, with this percentage gradually increasing to 7.5 percent annually beginning in fiscal year 2013.



## **Background**

### **DOD Goals for Renewable Energy Initiatives**

- Executive Order 13423 directs that, in each fiscal year, an amount of renewable energy equal to at least half of the statutorily required renewable energy that is consumed by a federal agency must come from new renewable sources placed into service after January 1, 1999.
- Section 2911(e) of Title 10 U.S.C. establishes a goal for DOD “to produce or procure” not less than 25 percent of its total facility energy consumption during fiscal year 2025, and each fiscal year thereafter, from renewable energy sources.



## Engagement Objectives

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1. What renewable energy initiatives, including projects involving the installation of solar panels, are currently producing energy or are under development on military installations?
  2. What are the costs associated with each of DOD's renewable energy initiatives?
  3. What are the goals of each of DOD's renewable energy initiatives?
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## Objective 1: DOD's Renewable Energy Initiatives

- As of April 22, 2010, DOD reported to us that it has 454 renewable energy initiatives currently producing energy or under development.
  - These initiatives included a variety of noncarbon power sources such as solar, wind, geothermal, and biomass energy at military installations.
  - These initiatives widely varied in size. For example, one smaller initiative involves solar-powered street lights that illuminate an installation road. Larger initiatives include a wind turbine and a waste-to-energy conversion project.
- Because DOD did not provide the energy initiative data in sufficient time to allow assessment of their accuracy and completeness before the mandate deadline, these data are of undetermined reliability.



## Objective 1: DOD's Renewable Energy Initiatives

**Table 1: Number of Initiatives by Type of Renewable Energy**

Type of renewable energy	Number of initiatives
Solar Photovoltaic	252
Solar Thermal	59
Geothermal Heat Pump	56
Wind	25
Daylighting	14
Waste-to-Energy	7
Geothermal	4
Other <sup>a</sup>	6
Not reported	31
<b>Total</b>	<b>454</b>

Source: GAO analysis of DOD data.

<sup>a</sup>DOD also reported one of each of the following six initiative types: Geothermal Electricity, Hydro-kinetic, Hydropower, Landfill Gas, Solar Pre-Heat, and Waste to Fuel.



## Objective 1: DOD's Renewable Energy Initiatives

- DOD's list of renewable energy initiatives is enclosed as appendices I and II. The list includes
  - projects located in the United States and overseas;
  - projects with a capacity equal to, or more than, 1,000 kilowatt hours (kWh) or 3.3 million British thermal units (MMbtu); and
  - projects that do not produce energy, but rather offset energy consumption (such as geothermal heat pumps or daylighting).
- In addition, the projects identified included projects located on land adjacent to or near the military installation.



## **Objective 2: Costs of Renewable Energy Initiatives Reported by DOD**

- Our review of DOD's renewable energy initiatives list found that there are a range of costs associated with each of the 454 projects listed.
  - 189 initiatives cost under \$1,000,000.
  - 138 initiatives cost \$1,000,000 or more.
  - 127 initiatives for which DOD provided no cost data.



## Objective 2: Costs of Renewable Energy Initiatives Reported by DOD

- Our review of the renewable energy initiatives list found that DOD has funded renewable energy initiatives at its installations using both up-front appropriated dollars and various types of agreements with private sector entities, which we refer to as alternative financing approaches.
- As we reported in December 2009,<sup>3</sup> although the services use up-front appropriated funding to develop smaller renewable energy initiatives, DOD officials explained that up-front appropriated funding may be a poor fit for developing the larger, higher-cost renewable initiatives that a key official says are necessary to achieve the renewable energy goals.
- According to our analysis of the data on DOD's renewable energy initiatives list, of the top 25 energy producing initiatives, 36 percent (9 of the 25) were funded through some sort of alternative financing approach.

<sup>3</sup>GAO, *Defense Infrastructure: DOD Needs to Take Actions to Address Challenges in Meeting Federal Renewable Energy Goals*, GAO-10-104 (Washington, D.C.: Dec. 18, 2009).



## Objective 3: Goals of DOD's Renewable Energy Initiatives

- DOD does not maintain readily available comprehensive information on goals for all of its renewable energy initiatives, project by project. Our analysis of DOD information compiled at our request shows that while some initiatives have clearly specified goals, other initiatives do not, and in many cases it is unclear whether the initiatives are actually meeting their goals.
- While DOD does not regularly report on its goals on an initiative-by-initiative basis, it annually reports its progress towards achieving its broader renewable energy goals to the Department of Energy for the Annual Energy Management Report. We reported in our December 2009 report that these data may not always be accurate.<sup>4</sup>
- Furthermore, DOD recently testified that it was “not even close to meeting the interim target” established for the goal to produce or procure not less than 25 percent of its total facility energy consumption from renewable energy sources by fiscal year 2025.<sup>5</sup>

<sup>4</sup>GAO-10-104.

<sup>5</sup>Dr. Dorothy Robyn, Statement of Deputy Under Secretary of Defense for Installations and Environment before the Subcommittee on Readiness, House Armed Services Committee (Feb. 24, 2010).



## Prior Recommendations

- Although we are not making any recommendations in this briefing, we made several recommendations for DOD to take to address challenges in meeting federal renewable energy goals in our December 2009 report.<sup>6</sup> Specifically, to enhance DOD's ability to achieve the renewable energy goals consistent with the need to maximize cost-effectiveness, follow existing federal guidance, and increase oversight of DOD's renewable energy activities, we recommended that the Secretary of Defense direct the Under Secretary of Defense (Acquisition, Technology and Logistics) in conjunction with the Secretaries of the military services to take the following five actions:
  1. Develop and issue guidance specifying how to accurately report DOD's annual progress toward the 2007 Defense Authorization Act goal, as amended by the fiscal year 2010 Defense Authorization Act. Among other things, this guidance should clearly define how the services are to apply the terms "produce" and "consume" to their implementation of the goal and how the Office of the Secretary of Defense (OSD) is to apply the terms to its reporting of DOD's progress toward the goal.

<sup>6</sup>GAO-10-104.



## Prior Recommendations

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2. Develop and issue guidance to assist the services in determining how to balance the use of land for renewable initiatives with their installations' primary missions, thereby assisting installation commanders and potential investors in knowing which land on the installations may be available for renewable energy initiatives, consistent with the installations' mission capabilities.
  3. Facilitate the successful implementation of alternative financing approaches and help ensure that DOD can maximize its opportunities for completing cost-effective renewable energy initiatives by (1) determining the adequate number of energy managers, contracting officials, and other officials with the necessary expertise to administer these complex transactions and (2) determining and providing the appropriate level of training to these employees.
  4. Develop a long-term, DOD-wide plan to assist DOD in effectively and efficiently meeting the renewable energy goals over the long term. At a minimum, this plan should identify key challenges—such as the higher price of renewable energy compared with conventional energy and volatility in renewable energy certificate markets—that DOD faces in meeting the goals, and ways to mitigate those challenges. The plan should also coordinate the services' renewable energy activities, contain realistic performance measures for DOD and the services so that OSD can accurately assess annual progress, and align DOD's resources in pursuit of the renewable energy goals.
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## Prior Recommendations

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- 5. Develop information systems or processes that will enable OSD to have visibility over DOD renewable energy initiatives, allow the services to monitor and coordinate the services' consumption of renewable energy, and guide DOD toward achievement of the renewable energy goals.
  - DOD concurred with four of these recommendations and partially concurred with one (the third recommendation), agreeing with its intent but stating that it is a service responsibility to determine the specific quantity and skill set of the staff needed to implement alternative financing approaches.
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## Scope and Methodology

To achieve our objectives, we

- requested that DOD provide us with information describing its renewable energy initiatives, associated costs, and details of its goals and targets using a standardized data-collection tool;
- reviewed DOD and service guidance and Department of Energy guidance applicable to DOD and the services; and
- interviewed the OSD level official responsible for summarizing the data and verifying their accuracy.

We did not independently validate the completeness or reliability of DOD's information on renewable energy initiatives because DOD did not provide the energy initiative data in sufficient time to allow assessment of their accuracy and completeness before the mandate deadline.

The Office of the Secretary of Defense did not have any comments on a draft of this briefing.



## Scope and Methodology

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- We performed our review from January 2010 through April 2010 in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions.
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## Related GAO Products

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- *Defense Infrastructure: DOD Needs to Take Actions to Address Challenges in Meeting Federal Renewable Energy Goals.* GAO-10-104. Washington, D.C.: December 18, 2009.
  - *Defense Critical Infrastructure: Actions Needed to Improve the Consistency, Reliability, and Usefulness of DOD's Tier 1 Task Critical Asset List.* GAO-09-740R. Washington, D.C.: July 17, 2009.
  - *Federal Energy Management: Addressing Challenges through Better Plans and Clarifying the Greenhouse Gas Emission Measure Will Help Meet Long-term Goals for Buildings.* GAO-08-977. Washington, D.C.: September 30, 2008.
  - *Defense Management: Overarching Organizational Framework Needed to Guide and Oversee Energy Reduction Efforts for Military Operations.* GAO-08-426. Washington, D.C.: March 13, 2008.
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## Related GAO Products

- *Advanced Energy Technologies: Budget Trends and Challenges for DOE's Energy R&D Program.* GAO-08-556T. Washington, D.C.: March 5, 2008.
- *Transmission Lines: Issues Associated with High-Voltage Direct-Current Transmission Lines along Transportation Rights of Way.* GAO-08-347R. Washington, D.C.: February 1, 2008.
- *Advanced Energy Technologies: Key Challenges to Their Development and Deployment.* GAO-07-550T. Washington, D.C.: February 28, 2007.
- *Department of Energy: Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs.* GAO-07-106. Washington, D.C.: December 20, 2006.
- *Renewable Energy: Increased Geothermal Development Will Depend on Overcoming Many Challenges.* GAO-06-629. Washington, D.C.: May 24, 2006.



## Related GAO Products

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- *Energy Savings: Performance Contracts Offer Benefits, but Vigilance Is Needed to Protect Government Interests.* GAO-05-340. Washington, D.C.: June 22, 2005.
  - *National Energy Policy: Inventory of Major Federal Energy Programs and Status of Policy Recommendations.* GAO-05-379. Washington, D.C.: June 10, 2005.
  - *Meeting Energy Demand in the 21st Century: Many Challenges and Key Questions.* GAO-05-414T. Washington, D.C.: March 16, 2005.
  - *Capital Financing: Partnerships and Energy Savings Performance Contracts Raise Budgeting and Monitoring Concerns.* GAO-05-55. Washington, D.C.: December 16, 2004.
  - *Geothermal Energy: Information on the Navy's Geothermal Program.* GAO-04-513. Washington, D.C.: June 4, 2004.
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## Appendix I: List of DOD Provided Renewable Energy Initiatives Including Costs

Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
1	Army	Aberdeen Proving Ground	MD						2009	0			ECIP
2	Army	Aberdeen Proving Ground	MD	Waste to Energy			10/1/03		2009	503,310,043			Other
3	Army	Aberdeen Proving Ground	MD	Install Solar Tubes & Controls	Daylighting	Under Const - Non Op			2009	0	840		ECIP
4	Army	Anniston Army Depot	AL	Groundsource thermal	Geothermal Heat Pump				2009	0			Army Working Capital Fund
5	Army	Anniston Army Depot	AL	Groundsource thermal	Geothermal Heat Pump				2009	0			Army Working Capital Fund
6	Army	Arizona Army National Guard	AZ	WAATS Solar Farm	Solar Photovoltaic	Fully Operational	4/1/05		2009	436,736	25,000		Appropriated
7	Army	Arizona Army National Guard	AZ	PPMR ECObuilding Solar Array	Solar Photovoltaic	Fully Operational	2/1/01		2009	122,832	750		Appropriated
8	Army	Arizona Army National Guard	AZ	Valencia Readiness Ctr PV Array	Solar Photovoltaic	Fully Operational	2/1/06		2009	67,216	103		Appropriated
9	Army	Arizona Army National Guard	AZ	Camp Navajo Wind Turbine	Wind	Fully Operational	10/1/02		2009	40,944	700		Appropriated
10	Army	Arizona Army National Guard	AZ	FMO Thin-film PV Array	Solar Photovoltaic	Fully Operational	7/1/05		2009	54,592			Appropriated
11	Army	Arizona Army National Guard	AZ	PPMR ECObuilding Wind Turbines	Wind	Fully Operational	1/1/03		2009	3,412			Appropriated
12	Army	Arizona Army National Guard	AZ	Static Display at PPMR Solar Array	Solar Photovoltaic	Fully Operational	8/1/06		2009	40,944	70		Appropriated
13	Army	Arizona Army National Guard	AZ	Solar Absorption Chiller - PPMR ECObuilding	Solar Thermal	Fully Operational	4/1/07		2009	100	1,500		Appropriated
14	Army	Arizona Army National Guard	AZ	AZARNG HQ Solar Water Potable Water	Solar Thermal	Fully Operational	1/1/08		2009	10			Appropriated
15	Army	Arizona Army National Guard	AZ	30KW Array on CSMS/MATES	Solar Photovoltaic	Under Const - Part Op	9/1/09		2009	1,706	97		Appropriated
16	Army	Arizona Army National Guard	AZ	Solar Daylighting at PPMR	Daylighting	Fully Operational	3/1/02		2009	34,120			Appropriated
17	Army	Arizona Army National Guard	AZ	12.0KW PV Array on RTI	Solar Photovoltaic	Under Const - Part Op	2/1/09		2009	54,592	103		Appropriated
18	Army	Army Research Lab Adelphi	MD	Install Thermal Roof Tile Heating System	Solar Thermal	Under Const - Non Op			2009	0	950		ECIP
19	Army	Colorado Army National Guard	CO	Transpired Solar Collector	Solar Thermal	Fully Operational	7/1/05		2009	120,000	1,500		Appropriated
20	Army	Fort AP Hill,	VA	Ground Source Heat Pumps	Geothermal Heat Pump	Fully Operational	1/1/01		2009	262,798			Alternative
21	Army	Fort Bliss	TX	Solar Daylighting	Daylighting	Under Const - Part Op			2009	7,942	2332		ECIP
22	Army	Fort Bragg	NC						2009	0			ECIP
23	Army	Fort Bragg	NC	Recover Turbine Exhaust Heat	Waste to Energy	Fully Operational	3/1/04		2009	40,000	2093		Appropriated

## Appendix I: List of DOD Provided Renewable Energy Initiatives Including Costs

Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
24	Army	Fort Buchanan	PR	Solar Wayter Heaters	Solar Thermal	Under Const - Non Op		Yes	2009	0	770		ECIP
25	Army	Fort Campbell	KY						2009	0			ECIP
26	Army	Fort Campbell	KY	Barracks 7112 Ground Source Heat Pump	Geothermal Heat Pump	Fully Operational	8/1/06	Yes	2009	620	0		Alternative
27	Army	Fort Carson	CO	Multiple Applications	Solar Photovoltaic	Fully Operational	1/1/08	Yes	2009	70			O&M/SRM
28	Army	Fort Carson	CO	Solar Tubes	Daylighting	Fully Operational	9/1/08	Yes	2009	157	2,000		SRM
29	Army	Fort Carson	CO	Transpired Solar Collector, Bldg 803	Solar Thermal	Fully Operational	9/1/06	Yes	2009	5,000			ECIP
30	Army	Fort Carson	CO	Transpired Solar Walls, Bldg 963	Solar Thermal	Fully Operational	1/1/97	Yes	2009	3,000			Appropriated
31	Army	Fort Carson	CO	Solar Hot Water for Indoor Pool	Solar Thermal	Fully Operational	1/1/90	Yes	2009	2,000			O&M
32	Army	Fort Carson	CO	Fort Carson Solar 1	Solar Photovoltaic	Fully Operational	10/1/07	Yes	2009	10,918,400			PPA
33	Army	Fort Dietrick	MD	Incinerator Heat Recovery	Waste to Energy	Fully Operational	1/2/05	No	2009	96,609			ECIP
34	Army	Fort Drum	NY	Solar Walls	Solar Thermal	Fully Operational	10/1/07	No	2009	44,317	531		ECIP
35	Army	Fort Drum	NY	Solar Walls & Rehab Shops	Solar Thermal	Under Const - Non Op		No	2009	13,790	2,500		ECIP
36	Army	Fort Drum	NY	Solar Walls & Energy Improvements	Solar Thermal	Under Const - Non Op		No	2009	7,192	1,600		ECIP
37	Army	Fort Gordon	GA	Ground Source Heat Pumps	Geothermal Heat Pump	Fully Operational	9/1/09	No	2009	9			ECIP
38	Army	Fort Huachuca	AZ	Various Grid connected PV systems at 4 sites installed from 1982 to 1998.					2009	108			RDT&E
39	Army	Fort Huachuca	AZ	Thriftshop					2009	86			O&M/SRM
40	Army	Fort Huachuca	AZ	10KW Wind Turbine	Wind	Fully Operational	2/12/02	Yes	2009	18			O&M/SRM
41	Army	Fort Huachuca	AZ	Daylighting	Daylighting	Fully Operational	8/1/01	Yes	2009	1,874			ECIP
42	Army	Fort Huachuca	AZ	Solar Walls	Solar Thermal	Fully Operational	3/1/01	No	2009	17			ESPC
43	Army	Fort Huachuca	AZ	Thin Film PV on MI Library	Solar Photovoltaic	Fully Operational	10/1/08	Yes	2009	75			O&M/SRM
44	Army	Fort Huachuca	AZ	Solar Attic	Solar Thermal	Fully Operational	6/1/02	No	2009	11			O&M/SRM
45	Army	Fort Huachuca	AZ	Barnes Fieldhouse, Pool Water Heater	Solar Thermal	Fully Operational	7/1/81	No	2009	5			O&M/SRM
46	Army	Fort Huachuca	AZ	SSVEC Truck Shelter	Solar Photovoltaic	Fully Operational	9/1/09	No	2009	0			O&M/SRM
47	Army	Fort Huachuca	AZ	Thin Film PV on Furnishing Warehouse	Solar Photovoltaic	Fully Operational	10/1/08	Yes	2009	75			O&M/SRM

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48	Army	Fort Hunter Liggett	CA						2009	5			
49	Army	Fort Irwin	CA	Install Solar PV					2009	498			O&M/SRM
50	Army	Fort Irwin	CA	Install Solar PV					2009	461			O&M/SRM
51	Army	Fort Irwin	CA	Install small 8 KW Wind Turbine					2009	88			O&M/SRM
52	Army	Fort Knox	KY	Solar photovoltaic Anderson pool #796	Solar Photovoltaic	Fully Operational	11/1/06	Yes	2009	49			Alternative
53	Army	Fort Knox	KY	Wind turbine installed 1.8KW	Wind	Fully Operational	8/1/08		2009	4			Alternative
54	Army	Fort Knox	KY	Biogenic Methane as UESC #70	Landfill Gas	Fully Operational	1/14/2009		2009	92,343	564		Alternative
55	Army	Fort Knox	KY	Firehouse #469 PV Array - Grid Connected	Solar Photovoltaic	Fully Operational	6/1/06	Yes	2009	7			Alternative
56	Army	Fort Knox	KY	Solar PV #1730 100KW local	Solar Photovoltaic	Fully Operational	9/1/09	Yes	2009	50			Appropriated
57	Army	Fort Knox	KY	Purchased kWhs from local landfill gas	Waste to Fuel	Fully Operational	6/1/99	Yes	2009	295		2.38	Appropriated
58	Army	Fort Knox	KY	Barracks GSHP Phase 4	GSHP	Fully Operational	2/26/10	No	2009	0	3,500		ECIP
59	Army	Fort Knox	KY	Geothermal Domestic Hot Water	Solar Thermal	Fully Operational	11/16/09	No	2009	0	1,200		ECIP
60	Army	Fort Knox	KY	Barracks GSHP Phase 5	GSHP			No	2009	0	4,850		ECIP
61	Army	Fort Knox	KY	Barracks GSHP Phase 6	GSHP			No	2009	0	3,303		ECIP
62	Army	Fort Polk	LA						2009	92,700			ESPC
63	Army	Fort Riley	KS						2009	35			O&M/SRM
64	Army	Fort Sill	OK	Solar Pool Water Heater	Solar Thermal	Funded		Yes	2009	0	310		ECIP
65	Army	Fort Stewart	GA						2009	0			ESPC
66	Army	Fort Wainwright	AK						2009	0			ECIP
67	Army	Hawaii Army National Guard	HI	RTSM 103rd Troop Command Solar Heater	Solar Thermal	Fully Operational	10/1/08		2009	48	27.00		Appropriated
68	Army	Hawaii Army National Guard	HI	Solar Streetlights (3) units	Solar Photovoltaic	Fully Operational	9/1/09		2009	1	4.60		Appropriated
69	Army	Kwajalein Atoll Illeginni Island	Marshall Is	Solar PV Array	Solar Photovoltaic	Fully Operational	10/1/05		2009	1			Appropriated
70	Army	McAlester AAP	OK	Pedestrian Cross Walk	Solar Photovoltaic	Fully Operational	1/1/06		2009	2			O&M/SRM
71	Army	McAlester AAP	OK	Purchased Hydropower	Hydro-Kinetic	Fully Operational	8/1/97		2009	27,182			PPA
72	Army	McAlester AAP	OK	Solar at Land Fill	Solar Photovoltaic	Fully Operational	7/1/05		2009	4			Appropriated

## Appendix I: List of DOD Provided Renewable Energy Initiatives Including Costs

Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
73	Army	Military Ocean Terminal Sunny Point	NC	Ground Source Heat Pumps	GSHP	Under Const - Part Op	4/1/10		2009	0	330		ECIP
74	Army	Minnesota Army National Guard	MN	XCEL Wind Rosemount	Wind	Fully Operational	1/1/07		2009	37			Appropriated
75	Army	Minnesota Army National Guard	MN	AHATS XCEL Wind Turbine	Wind	Fully Operational	1/1/2007		2009	35			Appropriated
76	Army	Minnesota Army National Guard	MN	Cloquet Wind Energy Purchase	Wind	Fully Operational	11/1/07		2009	41			Appropriated
77	Army	Minnesota Army National Guard	MN	Renewable Energy Camp Ripley	Wind	Fully Operational	8/1/07		2009	41			Appropriated
78	Army	New Jersey ARNG Sea Girt	NJ	230KW PV Solar Carport	Solar Photovoltaic	Fully Operational	8/31/09		2009	317			ECIP
79	Army	New Jersey ARNG Fort Dix	NJ	250KW PV Solar Carport	Solar Photovoltaic	Fully Operational	8/1/09		2009	853			ECIP
80	Army	New Jersey ARNG Fort Dix	NJ	280KW PV Solar Rooftop	Solar Photovoltaic	Fully Operational	6/1/05		2009	1,024			ECIP
81	Army	New Jersey ARNG Fort Dix	NJ	321KW PV Solar Rooftop	Solar Photovoltaic	Fully Operational	6/1/07		2009	1,194			ECIP
82	Army	North Carolina Army National Guard	NC						2009	2,400			Appropriated
83	Army	Oregon ARNG	OR	Wind Turbine 3KW	Wind	Fully Operational	10/1/08	Yes	2009	2			Appropriated
84	Army	Pennsylvania ARNG	PA	Geothermal (Dem/Val) SRP Bldg 4-20	Geothermal Heat Pump	Under Const - Non Op		No	2009	0	1.00		Appropriated
85	Army	Pohakuloa Training Center	HI	Solar Water Heating & Daylighting	Solar Thermal	Funded			2009	0	185.00		ECIP
86	Army	Red River Army Depot	TX	Scrap Wood For Boiler Plant	Waste to Energy	Fully Operational	6/1/92		2009	90,281	1.00		O&M/SRM
87	Army	Redstone Arsenal	AL	Purchased Steam	Waste to Energy	Fully Operational	12/1/87	No	2009	549,897			O&M/SRM
88	Army	Rock Island Arsenal	IL	Hydroelectric Plant Renovation	Hydropower	Fully Operational	4/1/05		2009	71,266			ECIP
89	Army	Schofield Barracks	HI	Solar Water Heaters	Solar Thermal				2009	0			ECIP
90	Army	Tooele Army Depot	UT	Solar Walls on 14 Buildings	Solar Thermal			Yes	2009	0	715.00		ECIP
91	Army	Tooele Army Depot	UT	Culinary Water Source Heat Pump	Geothermal	Fully Operational	5/1/03		2009	100	800.00		Appropriated
92	Army	USAG Benelux, BE		Solar Water Heating	Solar Thermal	Funded			2009	2,606	641.00		ECIP
93	Army	USAG Camp Humphreys, KO		Beacon Hill Retention Pond	Solar Thermal	Fully Operational	6/1/09		2009	2	1,177.00		Appropriated
94	Army	USAG Daegu, KO		Camp Carroll, gym solar water heater	Solar Thermal	Fully Operational	1/1/83		2009	1			Other
95	Army	USAG Detroit Arsenal	MI						2009	1			UESC
96	Army	USAG Hawaii	HI						2009	0			ECIP
97	Army	USAG Hawaii	HI	Solar water heating					2009	718			O&M/SRM

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98	Army	USAG Mannheim, GE		Solar Roof	Solar Photovoltaic	Fully Operational	12/1/02		2009	65			Appropriated
99	Army	USAG Schweinfurt, GE		Solar Panels, Bldg 64, Conn Bks	Solar Thermal	Fully Operational	7/1/2009			80			
100	Army	Utah Army National Guard							2009	0			Other
101	Army	USAG Yongsan, KO		GSHP	Geothermal	Fully Operational	12/1/02			2,094	41.89		ESPC
102	Army	USAG Yongsan, KO		GSHP (2)	Geothermal	Fully Operational	12/1/03			559	11.18		ESPC
103	Army	USAG Yongsan, KO		GSHP (3)	Geothermal	Fully Operational	12/1/05			1,128	22.57		ESPC
104	Army	Washington Army National Guard	WA						2009	0			O&M/SRM
105	Army	Washington Army National Guard	WA						2009	6			Appropriated
106	Army	Washington Army National Guard	WA							0			
107	Army	Yuma Proving Ground	AZ						2009	5,268			Appropriated
108	Army	Yuma Proving Ground	AZ	145 remote operating radio sites					2009	962			RDT&E
109	Army	Yuma Proving Ground	AZ	Smart Weapons Test Range 105 kW site					2009	825			RDT&E
110	Army	Yuma Proving Ground	AZ	10 kW Solar Project Site at building 2105					2009	75			RDT&E
111	Army	Yuma Proving Ground	AZ	4 kW Meteorological Solar Project Site 10					2009	30			RDT&E
112	Army	Yuma Proving Ground	AZ	several meteorological stations that use a solar power.					2009	8			RDT&E
113	Army	Yuma Proving Ground	AZ	Eighteen overhead solar powered 22 W streetlight					2009	6			O&M/SRM
114	Army	Yuma Proving Ground	AZ	Jogger path solar powered 22 W security light luminaires					2009	1			O&M/SRM
115	Army	Yuma Proving Ground	AZ	Solar Photovoltaic 1/2 MW					2009	3,363			ECIP
116	Dept Navy	Andros Island	Bahamas	Solar Thermal for Housing Hot Water	Solar Thermal	Under Const - Part Op	2009	No	2009	44	\$20.00	\$20.00	Appropriated
117	Dept Navy	NAS Jacksonville	FL	Perimeter Road Solar Street Lights	Solar Photovoltaic	Fully Operational	2007	Yes	2009	35	\$450.00	\$450.00	O&M

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118	Dept Navy	NAS Jacksonville	FL	UESC Solar Heating for BUMED Swimming Pool, Bldg 928	Solar Thermal	Under Const - Non Op		No	2009	0	\$1,079.00	\$1,079.00	UESC
119	Dept Navy	NAS Jacksonville	FL	UESC Solar Powered Base Entrance Sign	Solar Photovoltaic	Fully Operational	2009	Yes	2009	9	\$30.00	\$30.00	UESC
120	Dept Navy	NTTC Corry Station	FL	UESC Steam Plant Decentralization	Geothermal Heat Pump	Fully Operational	2001	Yes	2009	11,998	\$4,167.74	\$3,750.74	UESC
121	Dept Navy	WPNSTA Charleston	SC	UESC HVAC System and Controls, Lighting System and Controls and Low Flow Fixtures (Bundled Measures)	Geothermal Heat Pump	Fully Operational	2002	Yes	2009	150			
122	Dept Navy	NS Guantanamo Bay	Guat Bay	ESPC Four 0.95MW Wind Turbines	Wind	Fully Operational	2005	Yes	2009	12,107	\$12,094.79	\$12,092.79	ESPC
123	Dept Navy	NAS/JRB Fort Worth	TX	ESPC 10KW PV Panel Parking Structure	Solar Photovoltaic	Under Const - Non Op	Jul-11	Yes	2009	48	\$141.00	\$141.00	ESPC
124	Dept Navy	NAS/JRB Fort Worth	TX	2 EA 2.5KW Wind Turbines	Wind	Fully Operational	2008	Yes	2009	1	\$34.00	\$34.00	Appropriated
125	Dept Navy	NAS Kingsville	TX	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$4,040.00	\$4,040.00	Appropriated
126	Dept Navy	NAS Corpus Christi	TX	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$14,880.00	\$14,880.00	Appropriated
127	Dept Navy	NAS Meridian	MS	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$5,290.00	\$5,290.00	Appropriated
128	Dept Navy	NAS Gulfport	MS	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$6,520.00	\$6,520.00	Appropriated
129	Dept Navy	NAS Jacksonville	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$7,730.00	\$7,730.00	Appropriated
130	Dept Navy	NS Mayport	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$2,880.00	\$2,880.00	Appropriated
131	Dept Navy	NSA Orlando	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$3,110.00	\$3,110.00	Appropriated
132	Dept Navy	NAS Pensacola	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$2,250.00	\$2,250.00	Appropriated
133	Dept Navy	NAS Whiting Field	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$2,630.00	\$2,630.00	Appropriated
134	Dept Navy	NAS Key West	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$10,340.00	\$10,340.00	Appropriated
135	Dept Navy	NSA Panama City	FL	ARRA Building Integrated PV	Solar Photovoltaic	Funded		Yes	2009	0	\$2,250.00	\$2,250.00	Appropriated
136	Dept Navy	NSB Kings Bay	FL	Solar Domestic Hot Water	Solar Thermal	Budgeted		Yes	2009	2	\$475.20	\$475.20	UESC

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137	Dept Navy	NAS Jacksonville	FL	Ground Source Closed Loop Heat Pumps	Geothermal Heat Pump	Funded	7/1/2009	Yes	2009	0	\$1,235.00	\$1,235.00	Appropriated
138	Dept Navy	NAS Pensacola	FL	Geothermal Heat Pumps	Geothermal Heat Pump	Fully Operational	1999	Yes	2009	50			UESC
139	Dept Navy	NAS Pensacola	FL	Geothermal Heat Pumps	Geothermal Heat Pump	Fully Operational	2001	Yes	2009	92			UESC
140	Dept Navy	NS Guantanamo Bay	Guat Bay	Solar Powered Security Lights (12) at JTF Commissions Complex	Solar Photovoltaic	Fully Operational	2007	Yes	2009	299	\$68.00	\$68.00	Appropriated
141	Dept Navy	NAS Key West	FL	Solar Powered Perimeter Lights	Solar Photovoltaic	Fully Operational	2005	Yes	2009	20	\$750.00	\$750.00	Appropriated
142	Dept Navy	Naval Station Everett	WA	Install a 100kw wind turbine at Pacific Beach Washington	Wind	Budgeted		Yes	2010	1,228	\$448.00	\$448.00	Appropriated
143	Dept Navy	Naval Base Kitsap	WA	Install approximatley 150kw of photovoltaic cells at Naval Base Kitsap, Bremerton	Solar Photovoltaic	Funded		Yes	2010	495	\$1,499.00	\$1,499.00	UESC
144	Dept Navy	Naval Air Station Whidbey	WA	Install ground source heat pumps for two BEQ's at NAS Whidbey	Geothermal Heat Pump	Budgeted		Yes	2010	25,808	\$1,774.00	\$1,774.00	Appropriated
145	Dept Navy	Naval Base Kitsap	WA	Install water source heat pumps on Navy Barges at Naval Base Kitsap Bremerton	Geothermal Heat Pump	Funded		No	2009	10,800	\$4,321.00	\$4,321.00	Appropriated
146	Dept Navy	Naval Base Kitsap	WA	Install a 25 ton water source heat pump in Building 833 at Naval Base Kitsap Indian Island	Geothermal Heat Pump	Budgeted		No	2010	300	\$198.00	\$198.00	Appropriated
147	Dept Navy	NAF El Centro	CA	30.5 kW PV Carport, Bldg 4016	Solar Photovoltaic	Fully Operational	2006	No	2009	184	\$282.08	\$282.08	Appropriated
148	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 4001 (ARRA)	Solar Photovoltaic	Fully Operational	2010	No	2010	147	\$493.27	\$493.27	Appropriated
149	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 4002 (ARRA)	Solar Photovoltaic	Fully Operational	2010	No	2010	147	\$493.27	\$493.27	Appropriated

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150	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 201 (ARRA)	Solar Photovoltaic	Fully Operational	2010	No	2010	171	\$876.47	\$876.47	Appropriated
151	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 202 (ARRA)	Solar Photovoltaic	Fully Operational	2010	No	2010	171	\$876.47	\$876.47	Appropriated
152	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 214 (ARRA)	Solar Photovoltaic	Fully Operational	2010	No	2010	72	\$231.55	\$231.55	Appropriated
153	Dept Navy	Naval Base Coronado	CA	400 kW carport PV, Bldg 1456, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$3,400.00	\$3,400.00	Appropriated
154	Dept Navy	Naval Base Coronado	CA	200 kW carport PV, Bldg 1474, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$1,900.04	\$1,900.04	Appropriated
155	Dept Navy	Naval Base Coronado	CA	118 kW carport PV, Bldg 1481, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	322	\$290.40	\$290.40	Appropriated
156	Dept Navy	Naval Base Coronado	CA	237 KW PV Roof, Bldg 808 NAB, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	648	\$2,943.20	\$2,943.20	Appropriated
157	Dept Navy	Naval Base Coronado	CA	75.5 PV Roof, Bldg 1472, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	205	\$690.67	\$690.67	Appropriated
158	Dept Navy	Naval Base Coronado	CA	120 KW PV Integrated Roof, Hangar 1474, Special Project	Solar Photovoltaic	Under Const - Non Op		No	2010	256	\$430.00	\$430.00	Appropriated
159	Dept Navy	NAS Lemoore	CA	42.6 kW PV Roof, Bldg 801, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	88	\$588.07	\$588.07	Appropriated
160	Dept Navy	NAS Lemoore	CA	42.6 kW PV Roof, Bldg 802, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	88	\$588.07	\$588.07	Appropriated
161	Dept Navy	NAS Lemoore	CA	33.2 kW PV Roof, Bldg 803, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	69	\$457.62	\$457.62	Appropriated
162	Dept Navy	NAS Lemoore	CA	33.2 kW PV Roof, Bldg 804, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	69	\$457.62	\$457.62	Appropriated
163	Dept Navy	NAS Lemoore	CA	43.7 kW PV Roof, Bldg 43, ARRA	Solar Photovoltaic	Under Const - Non Op		No	2010	90	\$602.31	\$602.31	Appropriated
164	Dept Navy	NAS Lemoore	CA	20 kW PV Roof, BOQ 840, ECIP	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$468.00	\$468.00	Appropriated
165	Dept Navy	NAS Lemoore	CA	Pool 932 PV Shade Structures, CEP	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$360.00	\$360.00	Non-Appropriated
166	Dept Navy	NAS Lemoore	CA	Pool 932 Solar Thermal DHW, CEP	Solar Thermal	Under Const - Non Op		No	2009	0	\$360.00	\$360.00	Non-Appropriated
167	Dept Navy	NAS Lemoore	CA	BOQ 840 Solar Thermal DHW, ECIP	Solar Thermal	Under Const - Non Op		No	2009	0	\$468.00	\$468.00	Appropriated

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168	Dept Navy	Naval Base Point Loma	CA	27 kW PV Roof, Bldg 553 NMAWC, ARRA	Solar Photovoltaic	Fully Operational		No	2009	0	\$290.93	\$290.93	Appropriated
169	Dept Navy	Naval Base Point Loma	CA	21 kW PV Roof, Bldg 17A NMAWC, ARRA	Solar Photovoltaic	Fully Operational		No	2009	0	\$471.82	\$471.82	Appropriated
170	Dept Navy	Naval Base Point Loma	CA	21 kW PV Roof, Bldg 17B NMAWC, ARRA	Solar Photovoltaic	Fully Operational		No	2009	0	\$471.82	\$471.82	Appropriated
171	Dept Navy	Naval Base Point Loma	CA	179.8 kW PV Roof, Bldg 11 NMAWC, ARRA	Solar Photovoltaic	Fully Operational		No	2009	0	\$1,939.07	\$1,939.07	Appropriated
172	Dept Navy	Naval Base Point Loma	CA	32.2 kW PV Roof, Bldg 633 SUBASE, ARRA	Solar Photovoltaic	Fully Operational		No	2009	0	\$347.66	\$347.66	Appropriated
173	Dept Navy	SPAWAR San Diego	CA	580 kW Roof-Mounted PV System, Bldg 1 OTC	Solar Photovoltaic	Funded		No	2009	0	\$4,605.00	\$4,605.00	Appropriated
174	Dept Navy	SPAWAR San Diego	CA	580 kW Roof-Mounted PV System, Bldg 2 OTC	Solar Photovoltaic	Funded		No	2009	0	\$4,605.00	\$4,605.00	Appropriated
175	Dept Navy	NAS Fallon	NV	3,300 MBtu/Year Solar Thermal Pool Heating System	Solar Thermal	Fully Operational	2009	No	2009	0	\$371.00	\$371.00	Appropriated
176	Dept Navy	NAS Fallon	NV	Ground Source Heat Pumps, Bldg 350	Geothermal Heat Pump	Fully Operational	2005	No	2009	0			Appropriated
177	Dept Navy	NAS Fallon	NV	6,650 MBtu/year Solar DHW Systems, BQs	Solar Thermal	Budgeted		No	2009	0	\$904.99	\$904.99	Appropriated
178	Dept Navy	Naval Base San Diego	CA	57.7 kW PV Carport 2	Solar Photovoltaic	Fully Operational	2008	No	2009	350	\$680.00	\$680.00	Non-appropriated
179	Dept Navy	Naval Base San Diego	CA	57.7 kW PV Carport 3	Solar Photovoltaic	Fully Operational	2008	No	2009	350	\$680.00	\$680.00	Non-appropriated
180	Dept Navy	Naval Base San Diego	CA	93.6 kW PV Roof, Bldg 116	Solar Photovoltaic	Fully Operational	2010	No	2009	282	\$1,251.84	\$1,251.84	Appropriated
181	Dept Navy	Naval Base San Diego	CA	99.2 kW PV Roof, Bldg 3278	Solar Photovoltaic	Fully Operational	2010	No	2009	295	\$1,327.72	\$1,327.72	Appropriated
182	Dept Navy	Naval Base San Diego	CA	2.8 kW PV Roof, Bldg 3205	Solar Photovoltaic	Fully Operational	2010	No	2009	1	\$37.54	\$37.54	Appropriated
183	Dept Navy	Naval Base San Diego	CA	200 kW PV Carport, McCandless Blvd Sub-Station Parking Lot	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$1,595.00	\$1,595.00	Appropriated
184	Dept Navy	Naval Base San Diego	CA	Solar Thermal DHW, 6 Bldgs	Solar Thermal	Budgeted		No	2009	0	\$1,041.00	\$1,041.00	Appropriated

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185	Dept Navy	Naval Base Ventura County	CA	199 kW Roof-Mounted PV System, Bldg PH401	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$2,926.20	\$2,926.20	Appropriated
186	Dept Navy	Naval Base Ventura County	CA	298 kW Roof-Mounted PV System, Bldg PH800	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$1,950.80	\$1,950.80	Appropriated
187	Dept Navy	Naval Base Ventura County	CA	27.2 kW Roof-Mounted PV System, Bldg PH1000	Solar Photovoltaic	Fully Operational	2009	No	2009	188	\$249.37	\$249.37	Appropriated
188	Dept Navy	Naval Base Ventura County	CA	Phase I - 3 - 100 kW Wind Turbines, San Nicolas Island	Wind	Budgeted		Yes	2009	0	\$3,114.39	\$3,114.39	Appropriated
189	Dept Navy	Naval Base Ventura County	CA	Phase II - 400 kW Wind Turbines, San Nicolas Island	Wind	Funded		Yes	2009	0	\$4,242.00	\$4,242.00	Appropriated
190	Dept Navy	Naval Base Ventura County	CA	Solar Thermal Pool Heating Systems, PM & PH	Solar Thermal	Under Const - Non Op		Yes	2009	0	\$970.76	\$970.76	Appropriated
191	Dept Navy	Naval Base Ventura County	CA	54 kW PV Carport, Bldg PH1100	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$600.00	\$600.00	Appropriated
192	Dept Navy	NWS Seal Beach	CA	187 kW Roof-Mounted PV System, Bldg 78	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$2,026.06	\$2,026.06	Appropriated
193	Dept Navy	NWS Seal Beach	CA	31 kW Roof-Mounted PV System, Bldg 110	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$333.07	\$333.07	Appropriated
194	Dept Navy	NWS Seal Beach	CA	185 kW PV Shed Structure, Bldg 250	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$1,951.00	\$1,951.00	Appropriated
195	Dept Navy	NAWC China Lake	CA	58 kW PV Carport, Michelson Lab, Phase I	Solar Photovoltaic	Fully Operational	2009	No	2009	327	\$450.00	\$450.00	Appropriated
196	Dept Navy	NAWC China Lake	CA	41 kW PV Carport, Michelson Lab, Phase II	Solar Photovoltaic	Fully Operational	2009	No	2009	219	\$370.00	\$370.00	Appropriated
197	Dept Navy	NAWC China Lake	CA	24 kW PV Carport, Fire Station	Solar Photovoltaic	Fully Operational	2009	No	2009	150	\$210.00	\$210.00	Non-Appropriated
198	Dept Navy	NAWC China Lake	CA	9 kW PV Carport Addition, CBH	Solar Photovoltaic	Fully Operational	2009	No	2009	1	\$90.00	\$90.00	Appropriated
199	Dept Navy	NAWC China Lake	CA	263 kW Roof-Mounted PV System, Bldg 02188	Solar Photovoltaic	Fully Operational	2009	No	2009	631	\$2,858.46	\$2,858.46	Appropriated

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200	Dept Navy	NAWC China Lake	CA	99 kW Roof-Mounted PV System, Bldg 02466	Solar Photovoltaic	Fully Operational		No	2009	300	\$1,075.77	\$1,075.77	Appropriated
201	Dept Navy	NAWC China Lake	CA	19 kW Roof-Mounted PV System, Bldg 31598	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$212.91	\$212.91	Appropriated
202	Dept Navy	NAWC China Lake	CA	688 kW PV Carports, Bldgs 20001, 31455, 00005	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$5,896.58	\$212.91	Appropriated
203	Dept Navy	NAWC China Lake	CA	Repair Superior Valley Remote PV System	Solar Photovoltaic	Under Const - Non Op		Yes	2009	0	\$1,768.00	\$1,768.00	Non-Appropriated
204	Dept Navy	NSD Monterey	CA	51 kW Roof-Mounted PV System, Bldg 339	Solar Photovoltaic	Fully Operational	2009	No	2009	14	\$872.37	\$872.37	Appropriated
205	Dept Navy	NSD Monterey	CA	51 kW Roof-Mounted PV System, Bldg 234	Solar Photovoltaic	Fully Operational	2009	No	2009	14	\$872.37	\$872.37	Appropriated
206	Dept Navy	NSD Monterey	CA	51 kW Roof-Mounted PV System, Bldg 245	Solar Photovoltaic	Fully Operational	2009	No	2009	14	\$872.37	\$872.37	Appropriated
207	Dept Navy	NAWC China Lake	CA	Ground Source Heat Pumps	Geothermal Heat Pump	Budgeted		No	2009	0	\$1,480.00	\$1,480.00	Appropriated
208	Dept Navy	Naval Base Point Loma	CA	35 kW Roof-Mounted PV System, Bldg 554 NMAWC	Solar Photovoltaic	Budgeted		No	2009	0	\$243.00	\$243.00	Appropriated
209	Dept Navy	NAF El Centro	CA	20 kW PV Carport, Bldg 4016	Solar Photovoltaic	Fully Operational	2003	No	2009	123			Appropriated
210	Dept Navy	NAF El Centro	CA	Solar Streetlights	Solar Photovoltaic	Fully Operational	2007	No	2009	14	\$110.47	\$110.47	Appropriated
211	Dept Navy	NAF El Centro	CA	Solar Thermal Pool Heating System	Solar Thermal	Decommissioned	2005	Yes	2009	623	\$26.72	\$26.72	O&M
212	Dept Navy	NAS Lemoore	CA	14.4 kW Rooftop PV System, Bldg 50	Solar Photovoltaic	Fully Operational	2008	No	2009	55	\$182.86	\$182.86	Appropriated
213	Dept Navy	Naval Base Coronado	CA	ESPC HVAC system upgrades, solar array, compressed air, irrigation and a microturbine	Solar Photovoltaic	Fully Operational	2002	No	2009	0	\$7,711.55	\$7,711.55	ESPC

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Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
214	Dept Navy	Naval Base Coronado	CA	675 kW Wind Farm, San Clemente Island	Wind	Fully Operational	1999	No	2009	3,204			ESTCP
215	Dept Navy	Naval Base Coronado	CA	57.7 kW PV Carport adjacent to 750 kW PV Carport	Solar Photovoltaic	Fully Operational	2008	No	2009	314	\$680.00	\$680.00	
216	Dept Navy	Naval Base Coronado	CA	51 kW Solar Integrated Roof, Bldg 352	Solar Photovoltaic	Fully Operational	2008	No	2009	273	\$500.00	\$500.00	O&M
217	Dept Navy	Naval Base Coronado	CA	ESPC Decentralization and Energy Efficiency Upgrade	Solar Photovoltaic	Fully Operational	1999	No	2009	181	\$411.48	\$411.48	ESPC
218	Dept Navy	Naval Base Coronado	CA	21.6 kW Rooftop PV System, Bldg 678 NAS North Island	Solar Photovoltaic	Fully Operational	2002	No	2009	126	\$35.00	\$35.00	O&M
219	Dept Navy	Naval Base Coronado	CA	80 kW Ground-Mounted, Stand-alone PV System, REWS San Clemente Island	Solar Photovoltaic	Decommissioned	1998	No	2009	0			Appropriated
220	Dept Navy	Naval Base Point Loma	CA	57.7 kW PV Carport, NMAWC	Solar Photovoltaic	Fully Operational	2008	No	2009	252	\$680.00	\$680.00	Non-appropriated
221	Dept Navy	Naval Base Point Loma	CA	29.4 kW Roof-mounted PV System, Bldg 564	Solar Photovoltaic	Fully Operational	2006	No	2009	181	\$282.00	\$282.00	Appropriated
222	Dept Navy	Naval Base Point Loma	CA	Solar Thermal Pool Heating System, Bldg 2 SUBASE	Solar Thermal	Decommissioned	1998	Yes	2009	112	\$220.00	\$220.00	
223	Dept Navy	Naval Base San Diego	CA	57.7 kW PV Carport 1	Solar Photovoltaic	Fully Operational	2008	No	2009	350	\$680.00	\$680.00	Non-appropriated
224	Dept Navy	Naval Base San Diego	CA	14.4 kW Rooftop PV System, Bldg 3300	Solar Photovoltaic	Fully Operational	2000	No	2009	38	\$60.00	\$60.00	Appropriated
225	Dept Navy	Naval Base San Diego	CA	Approx 5,000 MBtu/year Solar Thermal Pool Heating System, ADM Prout Pool; part of Facility Design Improvements (Bundled Measures)	Solar Thermal	Fully Operational	2002	Yes	2009	3,287	\$243.00	\$243.00	UESC

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226	Dept Navy	Naval Base Ventura County	CA	Solar Rooftop Generating System, Bldg 850 PH	Solar Photovoltaic	Fully Operational	1999	No	2009	156	\$375.00	\$375.00	Appropriated
227	Dept Navy	Naval Base Ventura County	CA	Solar Rooftop Generating System, Bldg 806	Solar Photovoltaic	Fully Operational	2007	No	2009	1,109	\$1,000.00	\$1,000.00	Appropriated
228	Dept Navy	Naval Base Ventura County	CA	Solar Thermal DHW System, Bldg 850	Solar Thermal	Under Const - Non Op	1999	Yes	2009	0	\$200.00	\$200.00	Appropriated
229	Dept Navy	NAWC China Lake	CA	270 mW Geothermal PPV	Geothermal Electricity	Fully Operational	1987	No	2009	4,776,800			Public/private venture
230	Dept Navy	NAWC China Lake	CA	117 kW PV Carport, Consolidated Bachelor Housing Office	Solar Photovoltaic	Fully Operational	2008	No	2009	785	\$1,290.00	\$1,290.00	Appropriated
231	Dept Navy	NAWC China Lake	CA	6 kW Ground-Mounted PV System, Pass & ID	Solar Photovoltaic	Fully Operational	Pre - 1999	No	2009	34			ESTCP
232	Dept Navy	NAWC China Lake	CA	50kW Remote Ground-Mounted PV System, Darwin Site	Solar Photovoltaic	Fully Operational	2008	Yes	2009	314	\$567.60	\$567.60	Appropriated
233	Dept Navy	NBVC Ventura County, Santa Cruz Island	CA	Renewable Energy	Solar Photovoltaic	Fully Operational	2000	No	2009	812	\$2,700.00	\$2,158.47	Appropriated
234	Dept Navy	NSD Monterey	CA	10 kW Roof-Mounted PV System, Bldg 232	Solar Photovoltaic	Fully Operational	2007	No	2009	55	\$150.00	\$150.00	Appropriated
235	Dept Navy	NWS Seal Beach	CA	40 PV Bunker Door Lights	Solar Photovoltaic	Fully Operational	2003	No	2009	31			Appropriated
236	Dept Navy	NWS Seal Beach	CA	22.5 kW Roof-Mounted PV System, Bldg 16	Solar Photovoltaic	Fully Operational	2008	No	2009	133	\$364.50	\$363.00	Appropriated
237	Dept Navy	NAS Oceana	VA		Solar Photovoltaic		2004	No	2009	136			O&M
238	Dept Navy	NAS Oceana	VA	GSHP, Effluent Cooling, Lighting, Water Conservation, etc. (Dam Neck ESPC)	Geothermal Heat Pump	Fully Operational	2008	Yes	2009	243,794	\$5,315.00	\$5,315.00	ESPC
239	Dept Navy	NAS Oceana	VA	ESPC Decentralization and Energy Efficiency Upgrade (PH I)	Geothermal Heat Pump	Fully Operational	2004	Yes	2009	57,774	\$6,467.00	\$6,467.00	ESPC

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Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
240	Dept Navy	NAS Oceana	VA	MILCON Child-Development Center Ground-source Heat Pump	Geothermal Heat Pump	Fully Operational	2007	Yes	2009	519			Appropriated
241	Dept Navy	NAS Oceana, Dam Neck	VA	ESPC Ground Source Heat Pumps and Steam Plant Decommissioning	Geothermal Heat Pump		2007	Yes	2009	590	\$11,805.00	\$11,805.00	ESPC
242	Dept Navy	Naval Station Norfolk	VA		Solar Thermal	Decommissioned	1999	Yes	2009	1,000			
243	Dept Navy	Naval Station Norfolk	VA		Solar Thermal	Decommissioned	1999	Yes	2009	5,000			
244	Dept Navy	NAVFACLANT Norfolk, VA	VA		Geothermal Heat Pump		Pre - 1999	Yes	2009	100			
245	Dept Navy	WPNSTA Charleston, SC	SC	UESC HVAC System and Controls, Lighting System and Controls and Low Flow Fixtures (Bundled Measures)	Geothermal Heat Pump		2002	Yes	2009	150			
246	Dept Navy	Hampton Roads Region - Multiple Activities	VA	ARRA PV - 2.5 MW	Solar Photovoltaic	Funded		Yes	2010	0	\$23,000.00	\$23,000.00	
247	Dept Navy	NSA Norfolk - Northwest Annex	VA	Building 41 HVAC Upgrade Ground Source Heat Pump	Geothermal Heat Pump	Under Const - Part Op	2010	No	2009	0			
248	Dept Navy	NSA Norfolk - Northwest Annex	VA	Ground-source Heat Pump and/or Solar Wall - Under development FY11 Renewable ECIP Project	Geothermal Heat Pump	Budgeted				0			
249	Dept Navy	NSA Norfolk	VA	Ground-source Heat Pump and/or Solar Wall - Under development FY11 Renewable ECIP Project	Geothermal Heat Pump	Budgeted				0			
250	Dept Navy	JEB Little Creek-Fort Story	VA	ECIP - Ground-source Heat Pump	Geothermal Heat Pump	Under Const - Non Op				0	\$1,495.00	\$1,495.00	
251	Dept Navy	JEB Little Creek-Fort Story	VA	ECIP - Ground-source Heat Pump	Geothermal Heat Pump	Under Const - Non Op		No	2010	0	\$2,170.00	\$2,170.00	
252	Dept Navy	JEB Little Creek-Fort Story	VA	Wind Turbines	Wind	Budgeted		Yes	2010	0			

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253	Dept Navy	NAVSTA Newport	RI	Building Level Wind Turbine	Wind	Budgeted		Yes	2010	0	\$30.00	\$30.00	Appropriated
254	Dept Navy	NNSY	VA	ARRA ECIP - Roof top PV Array and high efficiency lighting	Solar Photovoltaic	Funded		Yes	2010	0	\$700.00	\$700.00	
255	Dept Navy	NAVSTA Norfolk	VA	ARRA ECIP - Roof top PV Array and high efficiency lighting	Solar Photovoltaic	Funded		Yes	2010	0	\$700.00	\$700.00	
256	Dept Navy	NAS Oceana	VA	ECIP - Renewable Energy Systems	Geothermal Heat Pump	Under Const - Non Op		Yes	2009	0	\$1,518.00	\$1,518.00	
257	Dept Navy	NAS Oceana	VA	ARRA ECIP - Renewable Energy Systems	Solar Pre-Heat	Funded		Yes	2009	4,310	\$700.00	\$700.00	
258	Dept Navy	NSA Annapolis	MD	Install roof Mounted PV Panels at Bldg 234NS	Solar Photovoltaic	Under Const - Non Op		Yes	2010	1	\$2,745.00	\$2,745.00	Appropriated
259	Dept Navy	NAS Pax River	MD	Install Roof Mounted PV Panels at Bldg 514	Solar Photovoltaic	Under Const - Non Op		Yes	2010	0	\$1,085.00	\$1,085.00	Appropriated
260	Dept Navy	NSWC Carderock	MD	Install Roof Mounted PV Panels at Bldg 4	Solar Photovoltaic	Under Const - Non Op		Yes	2010	1	\$2,489.00	\$2,489.00	appropriated
261	Dept Navy	NAVSTA Anacostia	DC	Install Roof Mounted PV Panels at Bldg 351	Solar Photovoltaic	Under Const - Non Op		Yes	2010	1	\$2,736.00	\$2,736.00	Appropriated
262	Dept Navy	NSA South Potomac Indian Head	MD	Facility Energy Improvements	Geothermal Heat Pump	Under Const - Non Op		No	2009	435	\$831.00	\$831.00	Appropriated
263	Dept Navy	NSA Souda Bay, GR	Greece	20 KW Solar Carport	Solar Photovoltaic	Budgeted		Yes	2010	938	\$1,844.00	\$1,844.00	
264	Dept Navy	NSA Naples, IT		300 KW PV	Solar Photovoltaic	Budgeted		Yes	2010	1,334	\$2,489.00	\$2,489.00	
265	Dept Navy	NAS Sigonella, IT		Solar Street Lighting	Solar Photovoltaic	Budgeted		Yes	2010	469	\$860.00	\$860.00	
266	Dept Navy	NAS Sigonella, IT		Solar Pool Heating (NAS 1)	Solar Thermal	Budgeted		No	2010	5,000	\$540.00	\$540.00	
267	Dept Navy	NAS Sigonella, IT		Solar Pool Heating (NAS 2)	Solar Thermal	Budgeted		No	2010	6,980	\$430.00	\$430.00	
268	Dept Navy	NAVSTA Rota, SP		ESPC Phase 1- Roof Top PV	Solar Photovoltaic	Funded		Yes	2010	21			ESPC
269	Dept Navy	NSA Souda Bay, GR	Greece	Solar Hot Water-CB Barracks	Solar Thermal	Fully Operational	2005	No	2010	150			
270	Dept Navy	NSA Souda Bay, GR	Greece	Solar Hot Water-Phase II	Solar Thermal	Fully Operational	2008	No	2010	349	\$330.00	\$330.00	

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271	Dept Navy	NAVSTA Whidbey	WA	Provide Facility Daylighting and Solar Walls in various hangars at Naval Air Station Whidbey	Daylighting	Under Const - Part Op		Yes	2009	3,709	\$854.00	\$854.00	Appropriated
272	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Systems, Various housing units	Solar Thermal		2000	Yes	2009	14,500			
273	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Carport, Sub-Piers	Solar Thermal	Fully Operational	2006	Yes	2009	3,920	\$543.00	\$516.00	ECIP
274	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Carport, NAVSTA	Solar Thermal	Fully Operational	2006	Yes	2009	3,584	\$538.50	\$492.27	ECIP
275	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Systems, Various housing units	Solar Thermal		1998	Yes	2009	2,200			Family Housing
276	Dept Navy	NAVFAC Hawaii	HI	309 KW PV Array, B54, Ford Island	Solar Photovoltaic	Fully Operational	2005	No	2009	1,706			RDT&E
277	Dept Navy	NAVFAC Hawaii	HI	107 kW PV Array, Halsey Terrace Community Center	Solar Photovoltaic	Fully Operational	2008	No	2009	532			O&M
278	Dept Navy	NAVFAC Hawaii	HI	PV power systems for remote utility assets	Solar Photovoltaic		2000	No	2009	75			
279	Dept Navy	NAVFAC Hawaii	HI	2 KW PV Array, B166, NAVSTA	Solar Photovoltaic	Fully Operational	2005	No	2009	10			
280	Dept Navy	NAVFAC Hawaii	HI	Solar Water Heating Systems, Fort Kamehameha WWTF	Solar Thermal	Fully Operational	2006	Yes	2009	50			
281	Dept Navy	NAVFAC Hawaii	HI	Solar Water Heating System, Building X-11, NAVFAC HI Compound	Solar Thermal	Fully Operational	2003	Yes	2009	23			
282	Dept Navy	COMFLEACT Yokosuka	Japan	Solar-powered street lights for off-grid lighting (near camping area)	Solar Photovoltaic	Fully Operational	2007	Yes	2009	1	\$21 (estimated)		

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283	Dept Navy	NAVAL AIR FACILITY ATSUGI	Japan	10 Kw Ground Mounted Solar PV Array	Solar Photovoltaic	Fully Operational	2009	No	2009	34	\$75.00	\$75.00	
284	Dept Navy	NSF	Diego Garcia	Install Solar Powered Street Lights	Solar Photovoltaic	Fully Operational	2009	Yes	2009	7	\$101.00	\$101.00	Appropriated
285	Dept Navy	COMFLEACT Okinawa	Japan	BIPV for Camp Shields Warehouse Bldg 8222	Solar Photovoltaic	Fully Operational	2007	No	2009	253			Appropriated
286	Dept Navy	COMFLEACT Chinhae Korea		Solar Streetlighting	Solar Photovoltaic	Fully Operational	2007	Yes	2009	7	\$90.00	\$90.00	Appropriated
287	Dept Navy	Naval Base,Guam	GU	Solar Hot Water Heating, Facility Energy Improvements	Solar Thermal		2009	No	2009	0	\$1,044.99	\$986.20	
288	Dept Navy	Naval Base,Guam	GU	Solar Photovoltaic Arrays, Barracks 1 & 2	Solar Photovoltaic	Fully Operational	2009	No	2009	60	\$1,256.50		ECIP
289	Dept Navy	Naval Base,Guam	GU	Energy Conservation Measures, Solar Photovoltaic Arrays (250KW)	Solar Photovoltaic	Fully Operational		No	2009	0	\$3,820.58		ESPC
290	Dept Navy	Naval Base,Guam	GU	Bldg. 631 (DRMO), Building Integration Photovoltaic (BIPV)	Solar Photovoltaic	Fully Operational	2009	No	2009	197	\$753.63	\$753.63	
291	Dept Navy	Naval Base,Guam	GU	Install Water Heating, B582, B583 & B585	Solar Thermal	Under Const - Non Op		No	2009	0	\$540.00	\$540.00	Appropriated
292	Dept Navy	Naval Base,Guam	GU	P-469, Bachelors Enlisted Quarters	Solar Photovoltaic			No	2009	0	\$53,787.00		
293	Dept Navy	Naval Station Pearl Harbor	HI	Rooftop Mounted Photovoltaic Systems	Solar Photovoltaic	Funded		Yes	2010	11,806	\$15,327.00		
294	Dept Navy	Pacific Missile Range Facility	HI	Rooftop Mounted Photovoltaic Systems	Solar Photovoltaic	Funded		Yes	2010	3,412	\$6,687.00		
295	Dept Navy	MCAS Cherry Point	NC	50KW PV system - Warehouse (Building 1016)	Solar Photovoltaic	Fully Operational	Mar-09	No	2009	299	\$ 594	\$ 594	Appropriated
296	Dept Navy	MCAS Cherry Point	NC	50 KW PV system - General Warehouse (Building 159)	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	299	\$ 587	\$ 587	Appropriated

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297	Dept Navy	MCAS Cherry Point	NC	30 KW PV system - Theater (Building 194)	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	179	\$ 388	\$ 388	Appropriated
298	Dept Navy	MCAS Beaufort	SC	Install 60 Government Provided Solar Power Security Lights	Solar Photovoltaic	Fully Operational	Oct-09	No		16	\$ 8	\$ 8	Appropriated
299	Dept Navy	MCAS Beaufort	SC	Solar Domestic Hot Water at O-Club (ECM in Beaufort ESPC III)	Solar Thermal	Fully Operational	Oct-09	No	2010	160	\$ 50	\$ 50	ESPC
300	Dept Navy	MCAS Yuma	AZ	Solar PV Sunshade (structure 233)	Solar Photovoltaic	Fully Operational	Jan-10	No	2009	190	\$ 407	\$ 407	Appropriated
301	Dept Navy	MCAS Yuma	AZ	Solar PV Metal Sunshades (Bldg 1239 & Bldg 1235)	Solar Photovoltaic	Fully Operational	Sep-09	No	2009	191	\$ 508	\$ 508	Appropriated
302	Dept Navy	MCAS Yuma	AZ	Solar PV (Bldg 1958) Clearwell	Solar Photovoltaic	Fully Operational	May-10	No	2010	194	\$ 448	\$ 448	Appropriated
303	Dept Navy	MCAS Yuma	AZ	Solar Electric Vehicle Charging Station (Bldg 603)	Solar Photovoltaic	Fully Operational	May-09	No	2009	42	\$ 125	\$ 125	Appropriated
304	Dept Navy	MCAS Yuma	AZ	Environmental BIPV Roof (Bldg 228)	Solar Photovoltaic	Fully Operational	Aug-09	No	2009	120	\$ 256	\$ 256	Appropriated
305	Dept Navy	MCAS Miramar	CA	30 KW Solar Roof mounted & Thermal applications	Solar Photovoltaic	Fully Operational	Nov-09	No	2009	1,007	\$ 683	\$ 683	Appropriated
306	Dept Navy	MCAS Miramar	CA	260 KW Solar Carport	Solar Photovoltaic	Fully Operational	Apr-10	No	2009	1,184	\$ 1,749	\$ 1,749	Appropriated
307	Dept Navy	MCAS Miramar	CA	300 KW Solar roof and Carport	Solar Photovoltaic	Budgeted	NA	No	2010	1,481	\$ 2,377	\$ 2,377	Appropriated
308	Dept Navy	MCAS Miramar	CA	Replacing Parking lot lights with Solar Units in Area 5	Solar Photovoltaic	Budgeted	NA	No	2010	287	\$ 2,659	\$ 2,659	Appropriated
309	Dept Navy	MCAS Miramar	CA	216 KW Solar Carport	Solar Photovoltaic	Budgeted	NA	No	2010	1,287	\$ 2,349	\$ 2,349	Appropriated
310	Dept Navy	MCAS Miramar	CA	Replaced Parking lot lights with Solar Units near Hangars 5 & 6	Solar Photovoltaic	Fully Operational	Feb-10	No	2009	61	\$ 722	\$ 722	Appropriated

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311	Dept Navy	MCAS Miramar	CA	Replaced Parking lot lights with Solar Units near Buildings 6003 & 6004	Solar Photovoltaic	Fully Operational	Feb-10	No	2009	61	\$ 714	\$ 714	Appropriated
312	Dept Navy	MCAS Pendleton	CA	134kW Solar PV Array - Roof Mounted (Bldgs 23208/23210)	Solar Photovoltaic	Under Const - Part Op	NA	No	2009	801	\$ 1,333	\$ 1,333	Appropriated
313	Dept Navy	MCAS Pendleton	CA	53kW Solar PV Array - Roof Mounted (Bldg 23209)	Solar Photovoltaic	Fully Operational	Mar-10	No	2009	317	\$ 772	\$ 772	Appropriated
314	Dept Navy	MCB Quantico	VA	Marathon Building (B3399)	Solar Photovoltaic	Fully Operational	Sep-09	No	2009	120	\$ 248	\$ 248	Appropriated
315	Dept Navy	MCB Camp Lejeune	NC	B1316 - completion expected 6/21/2010	Solar Photovoltaic	Funded	NA	No	2009	419	\$ 718	\$ 718	Appropriated
316	Dept Navy	MCB Camp Lejeune	NC	B1317 - completion expected 6/21/2010	Solar Photovoltaic	Funded	NA	No	2009	419	\$ 718	\$ 718	Appropriated
317	Dept Navy	MCB Camp Lejeune	NC	Roofs 1116, 1211, and 1212 - 288 kW per roof - Completion expected 12/21/2010	Solar Photovoltaic	Funded	NA	No	2009	5,166	\$ 7,309	\$ 7,309	Appropriated
318	Dept Navy	MCB Camp Lejeune	NC	TBD - facilities and possibly open areas where a PV array would be feasible	Solar Photovoltaic	Budgeted	NA	No	2009	11,361	\$ 10,000	\$ 10,000	Appropriated
319	Dept Navy	MCAGCC 29 Palms	CA	ESPC / 1.2 MW Solar Array	Solar Photovoltaic	Fully Operational	Sep-04	No	2009	6,576	\$ 10,493	\$ 10,493	ESPC
320	Dept Navy	MCAGCC 29 Palms	CA	Range 500	Solar Photovoltaic	Fully Operational	Sep-98	Yes	2009	90			Appropriated
321	Dept Navy	MCAGCC 29 Palms	CA	Remote repeater stations	Solar Photovoltaic	Fully Operational	Sep-02	No	2009	975			Appropriated
322	Dept Navy	MCAGCC 29 Palms	CA	Walkway lighting - Areas 1100,1200, and 1300	Solar Photovoltaic	Fully Operational	Jun-09	No	2009	9	\$ 1,280	\$ 1,280	Appropriated
323	Dept Navy	MCAGCC 29 Palms	CA	Buildings 2056, 2057 & 2058 (Vehicle Holding Sheds)	Solar Photovoltaic	Under Const - Non Op	Jun-10	No	2009	694	\$ 1,159	\$ 1,159	Appropriated

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Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
324	Dept Navy	MCAGCC 29 Palms	CA	Vehicle holding Sheds (Buildings 2067, 2068, 1201, 1202, and 2008)	Solar Photovoltaic	Under Const - Non Op	NA	No	2009	2,894	\$ 3,728	\$ 3,728	Appropriated
325	Dept Navy	MCAGCC 29 Palms	CA	B2009 (Vehicle Holding Shed)	Solar Photovoltaic	Budgeted	NA	No	2009	694	\$ 1,618	\$ 1,618	Appropriated
326	Dept Navy	MCAGCC 29 Palms	CA	BEQs 1462-1463	Solar Photovoltaic	Budgeted	NA	No	2009	460	\$ 1,458	\$ 1,458	Appropriated
327	Dept Navy	MCAGCC 29 Palms	CA	Building 2050	Solar Photovoltaic	Fully Operational	Jun-09	No	2009	299	\$ 672	\$ 672	Appropriated
328	Dept Navy	MCAGCC 29 Palms	CA	Building 1231 & 1233	Solar Photovoltaic	Fully Operational	Jun-09	No	2009	299	\$ 559	\$ 559	Appropriated
329	Dept Navy	MCAGCC 29 Palms	CA	Building 1229 & 1230	Solar Photovoltaic	Fully Operational	Jun-09	No	2009	299	\$ 485	\$ 485	Appropriated
330	Dept Navy	MCAGCC 29 Palms	CA	B2048	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	442	\$ 311	\$ 311	Appropriated
331	Dept Navy	MCAGCC 29 Palms	CA	B2049	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	442	\$ 738	\$ 738	Appropriated
332	Dept Navy	MCAGCC 29 Palms	CA	B2051	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	442	\$ 740	\$ 740	Appropriated
333	Dept Navy	MCAGCC 29 Palms	CA	B1203	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	287	\$ 540	\$ 540	Appropriated
334	Dept Navy	MCAGCC 29 Palms	CA	B1204	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	287	\$ 639	\$ 639	Appropriated
335	Dept Navy	MCAGCC 29 Palms	CA	B1205	Solar Photovoltaic	Fully Operational	Oct-09	No	2009	287	\$ 543	\$ 543	Appropriated
336	Dept Navy	MCAGCC 29 Palms	CA	B1222	Solar Photovoltaic	Fully Operational	Dec-09	No	2009	257	\$ 550	\$ 550	Appropriated
337	Dept Navy	MCAGCC 29 Palms	CA	B1251	Solar Photovoltaic	Fully Operational	Dec-09	No	2009	179	\$ 527	\$ 527	Appropriated
338	Dept Navy	MCAGCC 29 Palms	CA	B1801	Solar Photovoltaic	Under Const - Non Op	NA	No	2009	203	\$ 462	\$ 462	Appropriated
339	Dept Navy	MCAGCC 29 Palms	CA	B1802	Solar Photovoltaic	Funded	NA	No	2009	203	\$ 450	\$ 450	Appropriated
340	Dept Navy	MCAGCC 29 Palms	CA	B1803	Solar Photovoltaic	Funded	NA	No	2009	203	\$ 446	\$ 446	Appropriated
341	Dept Navy	MCAGCC 29 Palms	CA	B1804	Solar Photovoltaic	Funded	NA	No	2009	203	\$ 439	\$ 439	Appropriated
342	Dept Navy	MCAGCC 29 Palms	CA	B1805	Solar Photovoltaic	Funded	NA	No	2009	203	\$ 639	\$ 639	Appropriated
343	Dept Navy	MCAGCC 29 Palms	CA	GTF Tracked Sunshades	Solar Photovoltaic	Budgeted	NA	No	2009	5,980	\$ 2,700	\$ 2,700	Appropriated
344	Dept Navy	MCB Camp Pendleton	CA	46KW PV Array Roof Mounted Bldg 31917	Solar Photovoltaic	Fully Operational	Aug-04	No	2009	281	\$ 595	\$ 595	Appropriated
345	Dept Navy	MCB Camp Pendleton	CA	32KW PV Array Roof Mounted Bldgs 22111 and 22112	Solar Photovoltaic	Fully Operational	Apr-05	No	2009	191	\$ 360	\$ 360	Appropriated
346	Dept Navy	MCB Camp Pendleton	CA	43KW PV Array Roof Mounted on Bldgs 2246 and 2253	Solar Photovoltaic	Fully Operational	May-05	No	2009	225	\$ 360	\$ 360	Appropriated

## Appendix I: List of DOD Provided Renewable Energy Initiatives Including Costs

Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
347	Dept Navy	MCB Camp Pendleton	CA	14KW PV Array and Solar Thermal Ground Mounted 14 Area Pool	Solar Photovoltaic	Fully Operational	Jun-07	No	2009	86	\$ 1,046	\$ 1,046	Appropriated
348	Dept Navy	MCB Camp Pendleton	CA	32KW PV Array and Solar Thermal Ground Mounted 62 and 53 Area Pools	Solar Photovoltaic	Fully Operational	Jun-07	No	2009	173	\$ 1,046	\$ 1,046	Appropriated
349	Dept Navy	MCB Camp Pendleton	CA	30KW PV Array Roof Mounted Bldg 22113	Solar Photovoltaic	Fully Operational	Jun-08	No	2009	179	\$ 350	\$ 350	Appropriated
350	Dept Navy	MCB Camp Pendleton	CA	75KW PV Array Roof Mounted Bldg 2251	Solar Photovoltaic	Fully Operational	Jun-08	No	2009	448	\$ 637	\$ 637	UESC
351	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Roof Mounted Bldg 22114 & Electrical Service Upgrade	Solar Photovoltaic	Fully Operational	Jun-09	No	2009	299	\$ 732	\$ 732	Appropriated
352	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Roof Mounted Bldg 2252	Solar Photovoltaic	Fully Operational	Nov-09	No	2009	299	\$ 450	\$ 450	UESC
353	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Carport Mounted Bldg 430715	Solar Photovoltaic	Fully Operational	Dec-09	No	2009	299	\$ 450	\$ 450	Appropriated
354	Dept Navy	MCB Camp Pendleton	CA	10 KW PV Array Carport Mounted Bldg 2291 & 22 motorpool	Solar Photovoltaic	Fully Operational	Dec-05	No	2009	60	\$ 100	\$ 100	Appropriated
355	Dept Navy	MCB Camp Pendleton	CA	288 (240 w) streetlights	Solar Photovoltaic	Fully Operational	Various	No	2009	356	\$ 960	\$ 960	UESC
356	Dept Navy	MCB Camp Pendleton	CA	5KW PV Array Roof Mounted 33 Area Fitness Center	Solar Photovoltaic	Fully Operational	Dec-09	No	2009	30	\$ 50	\$ 50	Appropriated
357	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Roof Mounted Building 41404	Solar Photovoltaic	Fully Operational	Apr-10	No	2009	299	\$ 500	\$ 500	Appropriated
358	Dept Navy	MCB Camp Pendleton	CA	66 KW PV on Buildings 41408 and 41409	Solar Photovoltaic	Under Const - Non Op	On line July 2010	No	2009	395	\$ 480	\$ 480	UESC
359	Dept Navy	MCB Camp Pendleton	CA	252 KW Recycling Center and 43 Area Artillery Shed.	Solar Photovoltaic	Under Const - Non Op	On line June 2010	No	2009	1,507	\$ 3,114	\$ 3,114	Appropriated

## Appendix I: List of DOD Provided Renewable Energy Initiatives Including Costs

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360	Dept Navy	MCB Camp Pendleton	CA	1.445 MW Box Canyon landfill	Solar Photovoltaic	Funded	NA	No	2009	8,640	\$ 10,946	\$ 10,946	Appropriated
361	Dept Navy	MCB Camp Pendleton	CA	1.0 - 1.5 MW Box Canyon landfill	Solar Photovoltaic	Budgeted	NA	No	2009	7,175	\$ 10,000	\$ 10,000	Appropriated
362	Dept Navy	MCB Camp Pendleton	CA	Daylighting Harvesting Systems (300)	Daylighting	Fully Operational	Dec-08	No	2009	761	\$420	\$420	UESC
363	Dept Navy	MCB Camp Pendleton	CA	Ground Source Heat Pump (100 Tons)	Geothermal Heat Pump	Fully Operational	Dec-08	No	2009	4,143	\$ 1,400	\$1,400	UESC
364	Dept Navy	MCB Hawaii	HI	32 KW Building Integrated Photovoltaic Roofing, Bldg 1027	Solar Photovoltaic	Fully Operational	Sep-08	No	2009	173	\$ 521	\$ 521	Appropriated
365	Dept Navy	MCB Hawaii	HI	32 KW Building Integrated Photovoltaic Roofing, Bldg 1045	Solar Photovoltaic	Fully Operational	Sep-08	No	2009	170	\$ 521	\$ 521	Appropriated
366	Dept Navy	MCB Hawaii	HI	Solar Hot Water System, Bldg 503	Solar Thermal	Fully Operational	Apr-09	No	2009	1,062	\$ 370	\$ 370	Appropriated
367	Dept Navy	MCB Hawaii	HI	Skylights and Lighting Upgrades, Bldg 6469	Daylighting	Fully Operational	Nov-08	No	2009	66	\$ 189	\$ 189	Appropriated
368	Dept Navy	MCB Hawaii	HI	Solar Hot Water System, Bldg 386 and Lighting Upgrades, Bldg 375	Solar Thermal	Fully Operational	Jul-09	No	2009	255	\$ 556	\$ 556	Appropriated
369	Dept Navy	MCRD San Diego	CA	6 adjacent warehouse rooftops	Solar Photovoltaic	Fully Operational	Jan-09	No	2009	1,317	\$ 1,640	\$ 1,640	UESC
370	Dept Navy	MCRD San Diego	CA	* 250 KW PV system on the roof of buildings 218, 219, 223, 233, 234, 238. * 250 KW PV system on the roof of buildings 225, 226, 227, 228, 231, 232	Solar Photovoltaic	Under Const - Non Op	NA	No	2009	2,928	\$ 3,184	\$ 3,184	Appropriated
371	Dept Navy	MCRD San Diego	CA	*1.5MW ground mounted PV system	Solar Photovoltaic	Budgeted	NA	No	2009	8,785	\$ 10,000	\$ 10,000	Appropriated
372	Dept Navy	MCLB Barstow	CA	1.5 MW wind turbine	Wind	Fully Operational	Apr-09	No	2009	15,696	\$ 4,598	\$ 4,598	UESC

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373	Air Force	Hill AFB, Utah	UT	Hill AFB Landfill Gas to Energy	Waste to Energy	Fully Operational	2/17/05	Yes	2009	34,164		\$3,673	ESPC
374	Air Force	Hill AFB, Utah	UT	Purchased Steam from Offsite Municipal Solid Waste-to-Energy Facility	Waste to Energy	Fully Operational	2/15/06	No	2009	444,476			Appropriated
375	Air Force	Hill AFB, Utah	UT	200 KW - Ground Based PV Array	Solar Photovoltaic	Fully Operational	5/27/09	Yes	2009	463		\$2,679	ESPC
376	Air Force	Buckley, AFB, CO	CO	ECIP-Install 1000kW Solar Photovoltaic (PV) Panels	Solar Photovoltaic	Under Const - Non Op		No	2009	9,953	\$7,294,257	\$7,294,257	Appropriated
377	Air Force	Buckley, AFB, CO	CO	Install Solar Panels Bldg 26 (1 ea 10kW)	Solar Photovoltaic	Fully Operational	5/7/07	Yes	2009	100	\$50,000	\$50,000	Appropriated
378	Air Force	Buckley, AFB, CO	CO	Install Solar Panels Bldg 1005 (1 ea 10kW)	Solar Photovoltaic	Fully Operational	5/7/07	Yes	2009	100	\$50,000	\$50,000	Appropriated
379	Air Force	F.E. Warren, WY	WY	Install 2MW Wind Turbine	Wind	Fully Operational	6/1/09	Yes	2009	17,933	\$4,900,000	\$4,900,000	Appropriated
380	Air Force	F.E. Warren, WY	WY	Install Wind Turbines (2 ea 660 kW)	Wind	Fully Operational	10/31/05	Yes	2009	11,836	\$2,522,090	\$2,522,090	Appropriated
381	Air Force	Los Angeles AFB, CA	CA	Photo Voltaic System, Lighting Retrofit B/251 Commissary (145kW AC)	Solar Photovoltaic	Fully Operational	11/5/08	Yes	2009	144	\$853,522	\$853,522	Appropriated
382	Air Force	Peterson AFB, CO	CO	Construct Jogging Path Solar Lighting	Solar Photovoltaic	Decommissioned	9/22/03	Yes	2009	25	\$449,500	\$449,500	Appropriated
383	Air Force	Schriever AFB, CO	CO	P2-GPP, Green Product Substitution (Install Solar Panels at CDC)	Solar Photovoltaic	Fully Operational	6/28/08	Yes	2009	32	\$72,525	\$72,525	Appropriated
384	Air Force	Patrick AFB, FL	FL	Repair/Replace Ground Source Heat Pump(15 Ton GSHP)	GSHP	Under Const - Non Op		No	2010	158	\$399,124	\$399,124	Appropriated
385	Air Force	Malmstrom AFB, MT	MT	AFS021 Ground Source Heat Pump at Dorm 740 (25 Ton)	GSHP	Under Const - Non Op		No	2010	1,214	\$271,736	\$271,736	Appropriated
386	Air Force	Ascension AAF		Wind Generator Farm (4 x 225KW generators)	Wind	Fully Operational	9/15/96	Yes	2009	8,070	\$3,224,904	\$3,224,904	Appropriated

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387	Air Force	Ascension AAF		Wind Generator Farm (2 x 900KW generators)	Wind	Fully Operational	3/4/04	Yes	2009	16,140	\$3,961,031	\$3,961,031	Appropriated
388	Air Force	Ascension AAF		SOLAR POWER (PV) SYSTEM (150Kw)	Solar Photovoltaic	Fully Operational	11/5/07	Yes	2009	149	\$1,126,753	\$1,126,753	Appropriated
389	Air force	Homestead, Florida	FL	Install lights for walking/historical area	Solar Photovoltaic	Fully Operational	12/1/05	Yes	2009	3	N/A	N/A	Appropriated
390	Air Force	March ARB, California	CA	Construct PV system	Solar Photovoltaic	Fully Operational	12/6/06	Yes	2009	2,346	\$5,000	\$5,000	Appropriated
391	Air Force	March ARB, California	CA	Install PV power Parking and Storage Lot Lights	Solar Photovoltaic	Fully Operational	N/A	Yes	2009	28	N/A	N/A	Appropriated
392	Air Force	Aviano AB / Italy		CNS (160KWH+160KWH) GEOTHERMAL SYS AT FITNESS CTR, B1405	Geothermal Heat Pump	Funded	N/A	No	2010	1,026	\$687	\$687	Appropriated
393	Air Force	Incirlik AB / Turkey		Install Solar Hot in Various Facilities	Solar Thermal	Funded	N/A	No	2010	177	\$2,000	\$2,000	Appropriated
394	Air Force	RAF Mildenhall/ UK		RAF Mildenhall Visiting Officers Quarters	Solar Thermal	Fully Operational	2/1/84	No	2009	0			
395	Air Force	Moron AB / Spain		1.1MW Solar PV Farm-ground mounted	Solar Photovoltaic	Funded	N/A	Yes	2010	17	\$7,100	\$7,100	Appropriated
396	Air Natl Guard	Sky Harbor ANGB, Phoenix	AZ	16.8 kw solar PV Array-carport mounted - On Base	Solar Photovoltaic	Fully Operational	3/8/09	No	2009	11	\$280	\$280	Appropriated
397	Air Natl Guard	Fresno-Yosemite ANGB	CA	660 kw solar PV Array-Roof/carport mounted - On Base	Solar Photovoltaic	Fully Operational	2/24/09	No	2009	3,001	\$6,450	\$6,450	Appropriated
398	Air Natl Guard	Rosecrans ANGB, St. Joeseph	MO	160 kw Solar PV Roof Mounted - On Base	Solar Photovoltaic	Under Const - Part Op	12/20/10	No	2009	119	\$1,189	\$1,189	Appropriated
399	Air Natl Guard	Rosecrans ANGB, St. Joeseph	MO	12 kw Solar PV Roof Mounted - On Base	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$0	\$0	Appropriated
400	Air Natl Guard	Camp Perry ANGS	OH	188 kw Thin-Film Solar PV Ground Array - On Base	Solar Photovoltaic	Fully Operational	8/25/09	No	2009	129	\$3,369	\$3,369	RDT&E
401	Air Natl Guard	Camp Perry ANGS	OH	.65M wind turbine - On Base	Wind	Funded		No	2009	0	\$1,551	\$1,551	RDT&E

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402	Air Natl Guard	Toledo ANGB	OH	783 kw Thin-Film Solar PV Ground Array - On Base	Solar Photovoltaic	Fully Operational	6/17/09	No	2009	2,672	\$8,200	\$8,200	RDT&E
403	Air Natl Guard	Toledo ANGB	OH	400 kw Thin-Film Solar PV Ground Array - On Base	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$3,102	\$3,102	RDT&E
404	Air Natl Guard	Peoria ANGB	IL	84.75 Ton - Ground Source Heat Pumps - 1 Facility	Geothermal Heat Pump	Fully Operational	2/10/08	No	2009	0			Appropriated
405	Air Force	Altus AFB	OK	492 Watt PV (misc items) - on Base	Solar Photovoltaic	Fully Operational	after 1999	No	2009	2	unknown, too long ago	unknown, too long ago	Appropriated
406	Air Force	Goodfellow AFB	TX	1.8 KW PV (misc items) - on Base	Solar Photovoltaic	Fully Operational	after 1999	No	2009	9	unknown, too long ago	unknown, too long ago	Appropriated
407	Air Force	Lackland AFB	TX	1.29 KW PV (misc items) - on Base	Solar Photovoltaic	Fully Operational	after 1999	No	2009	6	unknown, too long ago	unknown, too long ago	Appropriated
408	Air Force	Laughlin AFB	TX	6 KW Roof Mounted Small Wind Turbines	Wind	Fully Operational	3/18/08	No	2009	3	\$34	\$34	Appropriated
409	Air Force	Luke AFB	AZ	350KW Rooftop PV system	Solar Photovoltaic	Fully Operational	6/28/05	No	2009	1,484	\$3,125	\$3,125	ESPC
410	Air Force	Hickam AFB	HI	67.2 kW solar PV array - roof mounted on Bldg 2155	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$592		Appropriated
411	Air Force	Hickam AFB	HI	79.8 kW solar PV array - roof mounted on Bldg 1050	Solar Photovoltaic	Under Const - Non Op		No	2009	0	\$585		Appropriated
412	Air Force	Andersen AFB	GU	Solar Domestic Hot Water Heaters	Solar Thermal	Fully Operational	6/22/05	No	2009	534			ESPC
413	Air Force	Kadena AB	Japan	Install Solar PV, Replace HVAC, AH, & Lighting B176	Solar Photovoltaic	Budgeted	N/A	No	2010	3,814			SRM
414	Air Force	Kadena AB	Japan	Install Solar PV, Replace HVAC, AH, & Lighting B177	Solar Photovoltaic	Budgeted	N/A	No	2010	3,814			SRM
415	Air Force	Kadena AB, Camp Lester	Japan	Two Solar PV Domestic Hot Water Systems	Solar Thermal	Fully Operational	11/22/97	No	2009	0			Appropriated
416	Air Force	Eielson AFB	AK	Install Wind Generators & Solar Controllers	Wind	Fully Operational	6/27/05	Yes	2009	0	\$122		Appropriated

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417	Air Force	Grand Forks AFB, ND	ND	REPAIR HVAC-GROUND SOURCE HEAT PUMP-CATM(R/M)	Geothermal Heat Pump	Budgeted		Yes	2009	0	\$188	\$188	Appropriated
418	Air Force	Grand Forks AFB, ND	ND	REPAIR HVAC-GSHP RECYCLING FAC (R/M)	Geothermal Heat Pump	Budgeted		Yes	2009	0	\$86	\$86	Appropriated
419	Air Force	Grand Forks AFB, ND	ND	REPAIR HVAC-GSHP COMM SQ HQ (R/M)	Geothermal Heat Pump	Budgeted		Yes	2009	0	\$1,704	\$1,704	Appropriated
420	Air Force	Charleston AFB, NC	SC	Charleston AFB ESPC	Geothermal Heat Pump	Fully Operational	11/28/07	No	2009	248,449	\$6,499,789	\$6,499,789	ESPC
421	Air Force	USAF Academy	CO	Purchase Renewable Energy from On-Base Solar Array	Solar PV	Proposals Due 05/2010		No	2011	22,860	\$18,300	\$18,300	SRM
422	Air Force	USAF Academy	CO	Install Solar Roof Vandenberg Hall	Solar PV	Proposals Due 05/2010		No	2011	1,228	\$1,200	\$1,200	SRM
423	Air Force	USAF Academy	CO	Install Solar Roof Multiple Facilities	Solar PV	Proposals Due 10/2010		No	2011	2,525	\$2,600	\$2,600	SRM
424	Air Force	MINOT AFB, ND	ND	Repair HVAC/Elec Community Center, Bldg 202	Geothermal Heat Pump	Fully Operational	2/1/08			1,400	\$687	\$687	Appropriated
425	Air Force	MINOT AFB, ND	ND	Install Ground Source Heat Pump bldg 546	Geothermal Heat Pump	Fully Operational	5/1/07			3,475	\$440	\$440	Appropriated
426	Air Force	MINOT AFB, ND	ND	Replace HVAC Bldg 167-BW (GSHP)	Geothermal Heat Pump	Fully Operational	11/1/08			840	\$856	\$856	Appropriated
427	Air Force	MINOT AFB, ND	ND	Bldg 545 (GSHP)	Geothermal Heat Pump	Fully Operational	9/1/07			130	\$80	\$80	Appropriated
428	Air Force	MINOT AFB, ND	ND	Install GSHP Bldgs 210 & 211	Geothermal Heat Pump	Fully Operational	1/1/10		2009	3,000	\$3,500	\$3,500	Appropriated
429	Air Force	MINOT AFB, ND	ND	Repair HVAC Bldg 445-CE (GSHP)	Geothermal Heat Pump	Fully Operational	11/1/09		2009	1,680	\$1,080	\$1,080	Appropriated
430	Air Force	MINOT AFB, ND	ND	GSHP Bldg 186	Geothermal Heat Pump	Fully Operational	10/1/08		2009	500	N/A	N/A	Appropriated
431	Air Force	MINOT AFB, ND	ND	Construct Bldg 394	Geothermal Heat Pump	Fully Operational	11/1/08		2009	100	\$555	\$555	Appropriated
432	Air Force	OFFUTT AFB, NE	NE	GSHP	Geothermal Heat Pump	Fully Operational	5/1/05		2009	45,404	\$6,040	\$6,040	Appropriated
433	Air Force	DAVIS-MONTHAN AFB	AZ	Daylighting	Daylighting	Fully Operational	12/29/00		2009	4,904	\$275,001	\$0	ESPC
434	Air Force	BARKSDALE AFB	LA	Daylighting (Repr AC Hgr Lighting)	Daylighting	Fully Operational	8/24/09		2009	396	\$275	\$275	Appropriated
435	Air Force	BARKSDALE AFB	LA	Daylighting (B6626)	Daylighting	Fully Operational	N/A		2009	73	\$50	\$0	ESPC

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436	Air Force	DYESS AFB	TX	Daylighting	Daylighting	Fully Operational	6/21/05		2009	1,212	\$364	\$0	UESC
437	Air Force	NELLIS AFB	NV	Daylighting	Daylighting	Fully Operational	1/11/07		2009	700	\$260	\$260	Appropriated
438	Air Force	Nellis AFB, NV	NV	PV Power Purchase Agreement	Solar Photovoltaic	Fully Operational	11/30/07		2009	115,780	\$110,000	\$0	PPA
439	Air Force	WHITEMAN AFB	MO	Construct Child Development Center	Geothermal Heat Pump	Fully Operational	12/1/07		2009	2,488	\$414	\$414	Appropriated
440	Air Force	WHITEMAN AFB	MO	ESPC - 9 Facilities	Geothermal Heat Pump	Fully Operational	Oct 07		2009	5,385	\$2,136	\$0	ESPC
441	Air Force	WHITEMAN AFB	MO	Install GSHP in 2 Facilities	Geothermal Heat Pump	Funded			2009	6,685	\$3,026	\$3,026	Appropriated
442	Air Force	WHITEMAN AFB	MO	Install GSHP in 4 Facilities	Geothermal Heat Pump	Funded			2009	6,685	\$3,747	\$3,747	Appropriated
443	NSA	Fort George G. Meade	MD	Burgin Building Solar Photovoltaic Array (Designed to produce 15 KW of solar power)	Solar Photovoltaic	Funded		No	2009	0.00	\$1,289.00	\$1,289.00	ECIP
444	NSA	Fort George G. Meade	MD	Visitor Center Daylight Harvesting (5 tubular skylights)	Daylighting	Fully Operational	3/1/09	No	2009	0.00	\$23.81	\$23.81	Appropriated
445	NSA	Fort George G. Meade	MD	Visitor Center Solar Photovoltaic Array (Designed to produce 15 KW of solar power)	Solar Photovoltaic	Fully Operational	3/1/09	No	2009	0.05	\$240.00	\$240.00	Appropriated
446	NSA	Fort George G. Meade	MD	Visitor Center Geothermal Heat Pumps (Eight 300 foot vertical wells)	Geothermal Heat Pump	Fully Operational	3/1/09	No	2009	360.00	\$170.60	\$170.60	Appropriated
447	NSA	Fort George G. Meade	MD	South Campus Electrical Utility Plant Solar Photovoltaic Array (Designed to produce 90 KW of solar power)	Solar Photovoltaic	Funded		No	2009	0.00	\$1,750.00	\$1,750.00	Appropriated
448	DeCA	Los Angeles AFB	CA	Install PV System, Lighting Retrofit	Solar Photovoltaic	Fully Operational	4/7/08	Yes	2009	442	\$853.00	\$853.00	ECIP
449	DIA	Bolling AFB, Wahington	DC	Install 2 solar powered lights in Parking Lot	Solar Photovoltaic	Fully Operational	8/1/09	Yes	2009	6.45	\$38.00	\$38.00	Appropriated
450	TMA	Fort Detrick, MD	MD	Medical Waste Incinerator	Waste to Energy	Fully Operational	6/25/05	No	2009	51,410	\$25,000.00	\$25,000.00	Appropriated

## Appendix I: List of DOD Provided Renewable Energy Initiatives Including Costs

Line #	Service / Component	Installation / Location	State / Country	Project Title	Type of Renewable Energy	Project Status	If Operational: Date Placed In Service	Project Designed to Supply DoD Independent of Grid?	Fiscal Year	Energy Produced (MMBtu)	Project Total Capital Cost (Thou. \$)	Project DoD Capital Cost (Thou. \$)	Funding Mechanism
451	WHS	Pentagon	VA	Pentagon Solar Farm (Sent to Ft. Huachuca in 4th QtrFY09) because HAZMAT facility will be built on this site.	Solar Photovoltaic	Fully Operational	2003	Yes	2009	115.33	\$743		ECIP
452	WHS	Pentagon	VA	Pentagon HRP Solar Guard Shack	Solar Photovoltaic	Fully Operational	2003	Yes	2009	29.89			ECIP
453	WHS	Pentagon	VA	Pentagon Solar Parking Lot Lights	Solar Photovoltaic	Fully Operational	2003	Yes	2009	29.39			ECIP
454	WHS	Pentagon	VA	Pentagon Solar Hot Water	Solar Thermal	Under Const - Non Op	2003	Yes	2009	0.00	\$200		ECIP

\*\*Rows 295 through 372 are coded "Dept Navy" in Column B, but these renewable initiatives are located on or near Marine Corps installations. These initiatives are coded as "Dept Navy" because the Department of the Navy manages both the

## Appendix II: List of DOD Provided Renewable Energy Initiatives Including Goals

Line #	Service / Component	Installation / Location	State / Country	Project Title	Renewable Energy Reported Towards EPACT 05 Goal (MMBtu)	Renewable Energy Reported as Progress Towards 10 USC 2911 Goal (MMBtu)	Energy Security or Energy Flexibility Impacts of Project	Description of Project's or Purchase's Goal As it Relates to Service / Installation Energy Plan	Is the Project or Purchase Goal Currently Being Met or Likely to be Met by the Completion of the Project or Purchase?	Description of Project's or Purchase's Goal As It Relates to DOD Meeting Federal or DOD Renewable Energy Goals	Is the Project or Purchase Goal As It Relates to DOD Meeting Federal or DOD Renewable Energy Goals Currently Being Met or Likely to Be Met by The Completion of The Project or Purchase?	Additional Notes from the Department of Defense
1	Army	Aberdeen Proving Ground	MD				on-site generation		Currently Met		Currently Met	
2	Army	Aberdeen Proving Ground	MD	Waste to Energy			on-site generation		Currently Met		Currently Met	
3	Army	Aberdeen Proving Ground	MD	Install Solar Tubes & Controls			on-site generation		Currently Met		Currently Met	
4	Army	Anniston Army Depot	AL	Groundsource thermal			on-site generation					
5	Army	Anniston Army Depot	AL	Groundsource thermal			on-site generation					
6	Army	Arizona Army National Guard	AZ	WAATS Solar Farm	873,472.00	436,736	on-site generation		Currently Met		Currently Met	WAATS Solar Farm
7	Army	Arizona Army National Guard	AZ	PPMR ECObuilding Solar Array	245,664.00	122,832	on-site generation		Currently Met		Currently Met	PPMR ECObuilding Solar Array
8	Army	Arizona Army National Guard	AZ	Valencia Readiness Ctr PV Array	134,432.80	67,216	on-site generation		Currently Met		Currently Met	Valencia Readiness Center PV Array
9	Army	Arizona Army National Guard	AZ	Camp Navajo Wind Turbine	81,888.00	40,944	on-site generation		Currently Met		Currently Met	Camp Navajo Wind Turbine Project
10	Army	Arizona Army National Guard	AZ	FMO Thin-film PV Array	109,184.00	54,592	on-site generation		Currently Met		Currently Met	FMO Thin-film Photovoltaic Array
11	Army	Arizona Army National Guard	AZ	PPMR ECObuilding Wind Turbines	6,824.00	3,412	on-site generation		Currently Met		Currently Met	PPMR ECObuilding Wind Turbines
12	Army	Arizona Army National Guard	AZ	Static Display at PPMR Solar Array	81,888.00	40,944	on-site generation		Currently Met		Currently Met	Static Display at PPMR Solar Array
13	Army	Arizona Army National Guard	AZ	Solar Absorption Chiller - PPMR ECObuilding	200.00	100	on-site generation		Currently Met		Currently Met	Solar Absorption Chiller - PPMR ECObuilding
14	Army	Arizona Army National Guard	AZ	AZARNG HQ Solar Water Potable Water	20.00	10	on-site generation		Currently Met		Currently Met	AZARNG HQ SOLAR WATER - POTABLE
15	Army	Arizona Army National Guard	AZ	30KW Array on CSMS/MATES	3,412.00	1,706	on-site generation		Currently Met		Currently Met	30KW Array on CSMS / MATES
16	Army	Arizona Army National Guard	AZ	Solar Daylighting at PPMR	68,240.00	34,120	on-site generation		Currently Met		Currently Met	Solar Daylighting at PPMR
17	Army	Arizona Army National Guard	AZ	12.0KW PV Array on RTI	109,184.00	54,592	on-site generation		Likely Met		Likely Met	12.0KW PV Array on RTI
18	Army	Army Research Lab Adelphi	MD	Install Thermal Roof Tile Heating System			on-site generation		Likely Met		Likely Met	Solar Thermal Roof Tiles
19	Army	Colorado Army National Guard	CO	Transpired Solar Collector	240,000.00	120,000	on-site generation		Likely Met		Likely Met	Transpired Solar Collector
20	Army	Fort AP Hill,	VA	Ground Source Heat Pumps	525,596.00	262,798	on-site generation		Likely Met		Likely Met	Ground Source Heat Pumps

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21	Army	Fort Bliss	TX	Solar Daylighting	15,884.00	7,942			Likely Met		Likely Met	Solar Daylighting at PPMR
22	Army	Fort Bragg	NC				on-site generation					
23	Army	Fort Bragg	NC	Recover Turbine Exhaust Heat	80,000.00	40,000	on-site generation		Likely Met		Likely Met	Turbine Waste Heat Recovery
24	Army	Fort Buchanan	PR	Solar Wayter Heaters			on-site generation		Likely Met		Likely Met	
25	Army	Fort Campbell	KY				on-site generation					
26	Army	Fort Campbell	KY	Barracks 7112 Ground Source Heat Pump	1,240.01	620	on-site generation		Likely Met		Likely Met	GSHP
27	Army	Fort Carson	CO	Multiple Applications	139.89	70	on-site generation		Likely Met		Likely Met	Multiple Applications
28	Army	Fort Carson	CO	Solar Tubes	313.90	157	on-site generation		Likely Met		Likely Met	PV prior to 1999
29	Army	Fort Carson	CO	Transpired Solar Collector, Bldg 803	10,000.00	5,000	on-site generation		Likely Met		Likely Met	Transpired air solar collector on Bldg 8030
30	Army	Fort Carson	CO	Transpired Solar Walls, Bldg 963	6,000.00	3,000	on-site generation		Likely Met		Likely Met	Transpired air solar collector on Bldg 9633
31	Army	Fort Carson	CO	Solar Hot Water for Indoor Pool	4,000.00	2,000	on-site generation		Likely Met		Likely Met	Solar Hot Water Heating for Indoor Pool - Bldg 1446
32	Army	Fort Carson	CO	Fort Carson Solar 1	21,836,800.00	10,918,400	on-site generation		Likely Met		Likely Met	Fort Carson Solar 1
33	Army	Fort Dietrick	MD	Incinerator Heat Recovery	193,218.00	96,609.00	on-site generation		Likely Met		Likely Met	Incinerator Heat Recovery
34	Army	Fort Drum	NY	Solar Walls	88,634.00	44,317.00	on-site generation		Likely Met		Likely Met	Solar Walls
35	Army	Fort Drum	NY	Solar Walls & Rehab Shops	27,580.00	13,790.00	on-site generation		Likely Met		Likely Met	Solar Walls
36	Army	Fort Drum	NY	Solar Walls & Energy Improvements	14,384.00	7,192.00			Likely Met		Likely Met	Solar Walls
37	Army	Fort Gordon	GA	Ground Source Heat Pumps	17.40	8.70			Likely Met		Likely Met	GSHP
38	Army	Fort Huachuca	AZ	Various Grid connected PV systems at 4 sites installed from 1982 to 1998.	216.82	108.41	on-site generation					Various Grid connected PV systems at 4 sites installed from 1982 to 1998.
39	Army	Fort Huachuca	AZ	Thriftshop	172.17	86.08	on-site generation					Thriftshop
40	Army	Fort Huachuca	AZ	10KW Wind Turbine	35.94	17.97	on-site generation		Likely Met		Likely Met	10 KW wind turbine

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41	Army	Fort Huachuca	AZ	Daylighting	3,747.06	1,873.53	on-site generation		Likely Met		Likely Met	Daylighting
42	Army	Fort Huachuca	AZ	Solar Walls	33.00	16.50	on-site generation		Likely Met		Likely Met	2 ea 2300 SF solarwalls
43	Army	Fort Huachuca	AZ	Thin Film PV on MI Library	150.13	75.06	on-site generation		Likely Met		Likely Met	Thin Film PV on MI Library
44	Army	Fort Huachuca	AZ	Solar Attic	22.24	11.00	on-site generation		Likely Met		Likely Met	Solar Attic
45	Army	Fort Huachuca	AZ	Barnes Fieldhouse, Pool Water Heater	10.00	5.00	on-site generation		Likely Met		Likely Met	Barnes Fieldhouse Solar Domestic Hot Water
46	Army	Fort Huachuca	AZ	SSVEC Truck Shelter	0.00	0.00	on-site generation					SSVEC Truck Shelter
47	Army	Fort Huachuca	AZ	Thin Film PV on Furnishing Warehouse	150.13	75.06	on-site generation		Likely Met		Likely Met	Thin Film PV on Furnishing Warehouse
48	Army	Fort Hunter Liggett	CA									
49	Army	Fort Irwin	CA	Install Solar PV			on-site generation					Install Solar PV
50	Army	Fort Irwin	CA	Install Solar PV			on-site generation					Install Solar PV
51	Army	Fort Irwin	CA	Install small 8 KW Wind Turbine			on-site generation					Install small 8 KW Wind Turbine
52	Army	Fort Knox	KY	Solar photovoltaic Anderson pool #796	98.95	49.47	on-site generation		Likely Met		Likely Met	Solar photovoltaic Anderson pool #796
53	Army	Fort Knox	KY	Wind turbine installed 1.8KW	7.02	3.51	on-site generation		Likely Met		Likely Met	Wind turbine installed 1.8KW
54	Army	Fort Knox	KY	Biogenic Methane as UESC #70	184,686.00	92,343.00	on-site generation		Likely Met		Likely Met	Biogenic Methane as UESC #70
55	Army	Fort Knox	KY	Firehouse #469 PV Array - Grid Connected	14.720	7.36	on-site generation		Likely Met		Likely Met	Firehouse #469 PV Array - Grid Connected
56	Army	Fort Knox	KY	Solar PV #1730 100KW local	99.358	49.68	on-site generation		Likely Met		Likely Met	Solar PV #1730 100KW local
57	Army	Fort Knox	KY	Purchased kWhs from local landfill gas	589.594	294.80	on-site generation		Likely Met		Likely Met	Purchased kWhs from local landfill gas
58	Army	Fort Knox	KY	Barracks GSHP Phase 4	0.000	0.00	on-site generation		Likely Met		Likely Met	Barracks GSHP Phase 4
59	Army	Fort Knox	KY	Geothermal Domestic Hot Water	0.000	0.00	on-site generation		Likely Met		Likely Met	Geothermal Domestic Hot Water
60	Army	Fort Knox	KY	Barracks GSHP Phase 5	0.000	0.00	on-site generation		Likely Met		Likely Met	Barracks GSHP Phase 5
61	Army	Fort Knox	KY	Barracks GSHP Phase 6	0.000	0.00	on-site generation		Likely Met		Likely Met	Barracks GSHP Phase 6

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62	Army	Fort Polk	LA				on-site generation					
63	Army	Fort Riley	KS				on-site generation					
64	Army	Fort Sill	OK	Solar Pool Water Heater			on-site generation		Likely Met		Likely Met	Solar Poll Water Heater
65	Army	Fort Stewart	GA				on-site generation					
66	Army	Fort Wainwright	AK				on-site generation					
67	Army	Hawaii Army National Guard	HI	RTSM 103rd Troop Command Solar Heater			on-site generation		Likely Met		Likely Met	RTSM 103rd Troop Command Solar Heater
68	Army	Hawaii Army National Guard	HI	Solar Streetlights (3) units			on-site generation		Likely Met		Likely Met	Solar Streetlights (3)
69	Army	Kwajalein Atoll Illeginni Island	Marshall Is	Solar PV Array			on-site generation		Likely Met		Likely Met	Solar Array
70	Army	McAlester AAP	OK	Pedestrian Cross Walk			on-site generation		Likely Met		Likely Met	Pedestrian Cross Walk
71	Army	McAlester AAP	OK	Purchased Hydropower					Likely Met		Likely Met	Purchased Hydropower
72	Army	McAlester AAP	OK	Solar at Land Fill			on-site generation		Likely Met		Likely Met	Solar at Landfill
73	Army	Military Ocean Terminal Sunny Point	NC	Ground Source Heat Pumps			on-site generation		Likely Met		Likely Met	
74	Army	Minnesota Army National Guard	MN	XCEL Wind Rosemount			on-site generation		Likely Met		Likely Met	XCEL Wind Rosemount
75	Army	Minnesota Army National Guard	MN	AHATS XCEL Wind Turbine			on-site generation		Likely Met		Likely Met	AHATS XCEL Wind Energy
76	Army	Minnesota Army National Guard	MN	Cloquet Wind Energy Purchase			on-site generation		Likely Met		Likely Met	Cloquet Wing Energy Purchase
77	Army	Minnesota Army National Guard	MN	Renewable Energy Camp Ripley			on-site generation		Likely Met		Likely Met	Renewable Energy for Camp Ripley
78	Army	New Jersey ARNG Sea Girt	NJ	230KW PV Solar Carport			on-site generation		Likely Met		Likely Met	230KW PV Solar Carport
79	Army	New Jersey ARNG Fort Dix	NJ	250KW PV Solar Carport			on-site generation		Likely Met		Likely Met	250KW PV Solar Carport
80	Army	New Jersey ARNG Fort Dix	NJ	280KW PV Solar Rooftop			on-site generation		Likely Met		Likely Met	280KW PV Solar Rooftop
81	Army	New Jersey ARNG Fort Dix	NJ	321KW PV Solar Rooftop			on-site generation		Likely Met		Likely Met	321KW PV Solar Rooftop
82	Army	North Carolina Army National Guard	NC									
83	Army	Oregon ARNG	OR	Wind Turbine 3KW			on-site generation		Likely Met		Likely Met	Wind Turbine 3KW
84	Army	Pennsylvania ARNG	PA	Geothermal (Dem/Val) SRP Bldg 4-20			on-site generation		Likely Met		Likely Met	Geothermal (Dem/Val)

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85	Army	Pohakuloa Training Center	HI	Solar Water Heating & Daylighting			on-site generation		Likely Met		Likely Met	Solar Water Heating & Daylighting
86	Army	Red River Army Depot	TX	Scrap Wood For Boiler Plant			on-site generation		Likely Met		Likely Met	Scrap Wood for Boiler Plant
87	Army	Redstone Arsenal	AL	Purchased Steam			on-site generation		Likely Met		Likely Met	Purchased Steam
88	Army	Rock Island Arsenal	IL	Hydroelectric Plant Renovation			on-site generation		Likely Met		Likely Met	3 MW hydropower
89	Army	Schofield Barracks	HI	Solar Water Heaters			on-site generation		Likely Met		Likely Met	Solar Water Heaters
90	Army	Tooele Army Depot	UT	Solar Walls on 14 Buildings			on-site generation		Likely Met		Likely Met	Solar Walls in 14 Buildings
91	Army	Tooele Army Depot	UT	Culinary Water Source Heat Pump			on-site generation		Likely Met		Likely Met	Culinary Water Source Heat Pump
92	Army	USAG Benelux, BE		Solar Water Heating			on-site generation		Likely Met		Likely Met	Solar Water Heating & Daylighting
93	Army	USAG Camp Humphreys, KO		Beacon Hill Retention Pond			on-site generation		Likely Met		Likely Met	Beacon Hill Retention Pond
94	Army	USAG Daegu, KO		Camp Carroll, gym solar water heater			on-site generation		Likely Met		Likely Met	Camp Carroll, Solar Water Heater
95	Army	USAG Detroit Arsenal	MI				on-site generation					
96	Army	USAG Hawaii	HI				on-site generation					
97	Army	USAG Hawaii	HI	Solar water heating			on-site generation					Solar water heating
98	Army	USAG Mannheim, GE		Solar Roof			on-site generation		Likely Met		Likely Met	Solar Roof
99	Army	USAG Schweinfurt, GE		Solar Panels, Bldg 64, Conn Bks			on-site generation		Likely Met		Likely Met	Solar Panels, Bldg 64, Conn Bks
100	Army	Utah Army National Guard					on-site generation					
101	Army	USAG Yongsan, KO		GSHP			on-site generation		Likely Met		Likely Met	GSHP
102	Army	USAG Yongsan, KO		GSHP (2)			on-site generation		Likely Met		Likely Met	GSHP (2)
103	Army	USAG Yongsan, KO		GSHP (3)			on-site generation		Likely Met		Likely Met	GSHP (3)
104	Army	Washington Army National Guard	WA									
105	Army	Washington Army National Guard	WA				on-site generation					
106	Army	Washington Army National Guard	WA									
107	Army	Yuma Proving Ground	AZ				on-site generation					

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108	Army	Yuma Proving Ground	AZ	145 remote operating radio sites								145 remote operating radio sites
109	Army	Yuma Proving Ground	AZ	Smart Weapons Test Range 105 kW site								Smart Weapons Test Range 105 kW site
110	Army	Yuma Proving Ground	AZ	10 kW Solar Project Site at building 2105			on-site generation					10 kW Solar Project Site at building 2105
111	Army	Yuma Proving Ground	AZ	4 kW Meteorological Solar Project Site 10								4 kW Meteorological Solar Project Site 10
112	Army	Yuma Proving Ground	AZ	several meteorological stations that use a solar power.								several meteorological stations that use a solar power.
113	Army	Yuma Proving Ground	AZ	Eighteen overhead solar powered 22 W streetlight								Eighteen overhead solar powered 22 W streetlight
114	Army	Yuma Proving Ground	AZ	Jogger path solar powered 22 W security light luminaires								Jogger path solar powered 22 W security light luminaires
115	Army	Yuma Proving Ground	AZ	Solar Photovoltaic 1/2 MW								Solar Photovoltaic 1/2 MW
116	Dept Navy	Andros Island	Bahamas	Solar Thermal for Housing Hot Water	0.00	44.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Hot water for housing
117	Dept Navy	NAS Jacksonville	FL	Perimeter Road Solar Street Lights	30.71	30.71	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Install solar street lights in Perimeter Road
118	Dept Navy	NAS Jacksonville	FL	UESC Solar Heating for BUMED Swimming Pool, Bldg 928	0.00		Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Solar Thermal Panels to preheat Pool Water
119	Dept Navy	NAS Jacksonville	FL	UESC Solar Powered Base Entrance Sign	8.87	8.87	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Currently Met	Supports 10 USC 2911 renewable energy goal	Currently Met	Solar Thermal Panels to preheat Pool Water
120	Dept Navy	NTTC Corry Station	FL	UESC Steam Plant Decentralization	0.00	11,998.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Heating/cooling system

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121	Dept Navy	WPNSA Charleston	SC	UESC HVAC System and Controls, Lighting System and Controls and Low Flow Fixtures (Bundled Measures)	0.00	150.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Ground Source Heat Pumps
122	Dept Navy	NS Guantanamo Bay	Guat Bay	ESPC Four 0.95MW Wind Turbines	12,107.00	12,107.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	
123	Dept Navy	NAS/JRB Fort Worth	TX	ESPC 10KW PV Panel Parking Structure	299.00	299.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	10KW PV panel
124	Dept Navy	NAS/JRB Fort Worth	TX	2 EA 2.5KW Wind Turbines	150.00	150.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		2 EA, 250KW Wind Turbines
125	Dept Navy	NAS Kingsville	TX	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
126	Dept Navy	NAS Corpus Christi	TX	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
127	Dept Navy	NAS Meridian	MS	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
128	Dept Navy	NAS Gulfport	MS	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
129	Dept Navy	NAS Jacksonville	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
130	Dept Navy	NS Mayport	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
131	Dept Navy	NSA Orlando	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
132	Dept Navy	NAS Pensacola	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.

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133	Dept Navy	NAS Whiting Field	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
134	Dept Navy	NAS Key West	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
135	Dept Navy	NSA Panama City	FL	ARRA Building Integrated PV	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Currently under design, all values can change.
136	Dept Navy	NSB Kings Bay	FL	Solar Domestic Hot Water	0.00	2.24	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Provide Domestic hot water for building 1034 and for heating the base diving and swimming pools
137	Dept Navy	NAS Jacksonville	FL	Ground Source Closed Loop Heat Pumps			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	
138	Dept Navy	NAS Pensacola	FL	Geothermal Heat Pumps	0.00	50.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Family Housing 236 units. Pre-1999
139	Dept Navy	NAS Pensacola	FL	Geothermal Heat Pumps	92.00	92.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Heating/Cooling System
140	Dept Navy	NS Guantanamo Bay	Guat Bay	Solar Powered Security Lights (12) at JTF Commissions Complex	2.40	2.40	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Exterior Security Lights
141	Dept Navy	NAS Key West	FL	Solar Powered Perimeter Lights	20.40	20.40	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	
142	Dept Navy	Naval Station Everett	WA	Install a 100kw wind turbine at Pacific Beach Washington	1,228.32	1,228.92	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
143	Dept Navy	Naval Base Kitsap	WA	Install approximately 150kw of photovoltaic cells at Naval Base Kitsap, Bremerton	494.74	494.74	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
144	Dept Navy	Naval Air Station Whidbey	WA	Install ground source heat pumps for two BEQ's at NAS Whidbey			Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Ground source heat pump

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145	Dept Navy	Naval Base Kitsap	WA	Install water source heat pumps on Navy Barges at Naval Base Kitsap Bremerton			Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
146	Dept Navy	Naval Base Kitsap	WA	Install a 25 ton water source heat pump in Building 833 at Naval Base Kitsap Indian Island			Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
147	Dept Navy	NAF El Centro	CA	30.5 kW PV Carport, Bldg 4016	184.25	184.25	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	BQ Carport
148	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 4001 (ARRA)	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Roof-Mounted PV System
149	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 4002 (ARRA)	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Roof-Mounted PV System
150	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 201 (ARRA)	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Roof-Mounted PV System
151	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 202 (ARRA)	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Roof-Mounted PV System
152	Dept Navy	NAF El Centro	CA	Rooftop PV project, Bldg 214 (ARRA)	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Roof-Mounted PV System
153	Dept Navy	Naval Base Coronado	CA	400 kW carport PV, Bldg 1456, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	400 kW PV Carport, Bldg 1456, ARRA ECIP
154	Dept Navy	Naval Base Coronado	CA	200 kW carport PV, Bldg 1474, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	200 kW carport PV, Bldg 1474, ARRA
155	Dept Navy	Naval Base Coronado	CA	118 kW carport PV, Bldg 1481, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	23 kW carport PV, Bldg 1481, ARRA
156	Dept Navy	Naval Base Coronado	CA	237 kW PV Roof, Bldg 808 NAB, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	PV Roof, Bldg 808 NAB, ARRA

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157	Dept Navy	Naval Base Coronado	CA	75.5 PV Roof, Bldg 1472, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	PV Roof, Bldg 1472, ARRA
158	Dept Navy	Naval Base Coronado	CA	120 kW PV Integrated Roof, Hangar 1474, Special Project	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	PV Integrated Roof, Hangar 1474, Special Project
159	Dept Navy	NAS Lemoore	CA	42.6 kW PV Roof, Bldg 801, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	14.4 kW PV Bldg 50; project built using Techval funding in place of a hangar destratification project
160	Dept Navy	NAS Lemoore	CA	42.6 kW PV Roof, Bldg 802, ARRA	88.37	88.37	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	42.6 kW PV Roof, Bldg 801, ARRA
161	Dept Navy	NAS Lemoore	CA	33.2 kW PV Roof, Bldg 803, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	42.6 kW PV Roof, Bldg 802, ARRA
162	Dept Navy	NAS Lemoore	CA	33.2 kW PV Roof, Bldg 804, ARRA	68.92	68.92	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	33.2 kW PV Roof, Bldg 803, ARRA
163	Dept Navy	NAS Lemoore	CA	43.7 kW PV Roof, Bldg 43, ARRA	90.42	90.42	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	33.2 kW PV Roof, Bldg 804, ARRA
164	Dept Navy	NAS Lemoore	CA	20 kW PV Roof, BOQ 840, ECIP	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	43.7 kW PV Roof, Bldg 43, ARRA
165	Dept Navy	NAS Lemoore	CA	Pool 932 PV Shade Structures, CEP	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	20 kW PV Roof, BOQ 840, ECIP
166	Dept Navy	NAS Lemoore	CA	Pool 932 Solar Thermal DHW, CEP	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Pool 932 PV Shade Structures, CEP
167	Dept Navy	NAS Lemoore	CA	BOQ 840 Solar Thermal DHW, ECIP	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Pool 932 Solar Thermal DHW, CEP
168	Dept Navy	Naval Base Point Loma	CA	27 kW PV Roof, Bldg 553 NMAWC, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	27 kW PV Roof, Bldg 553 NMAWC, ARRA
169	Dept Navy	Naval Base Point Loma	CA	21 kW PV Roof, Bldg 17A NMAWC, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	21 kW PV Roof, Bldg 17A NMAWC, ARRA

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170	Dept Navy	Naval Base Point Loma	CA	21 kW PV Roof, Bldg 17B NMAWC, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	21 kW PV Roof, Bldg 17B NMAWC, ARRA
171	Dept Navy	Naval Base Point Loma	CA	179.8 kW PV Roof, Bldg 11 NMAWC, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	179.8 kW PV Roof, Bldg 11 NMAWC, ARRA
172	Dept Navy	Naval Base Point Loma	CA	32.2 kW PV Roof, Bldg 633 SUBASE, ARRA	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	32.2 kW PV Roof, Bldg 633 SUBASE, ARRA
173	Dept Navy	SPAWAR San Diego	CA	580 kW Roof-Mounted PV System, Bldg 1 OTC	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	580 kW Roof-Mounted PV System, Bldg 1 OTC
174	Dept Navy	SPAWAR San Diego	CA	580 kW Roof-Mounted PV System, Bldg 2 OTC	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	580 kW Roof-Mounted PV System, Bldg 2 OTC
175	Dept Navy	NAS Fallon	NV	3,300 MBtu/Year Solar Thermal Pool Heating System	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	3,300 MBtu/year solar thermal pool heating system; production not reported in FY 2009 by error
176	Dept Navy	NAS Fallon	NV	Ground Source Heat Pumps, Bldg 350	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Ground Source Heat Pumps, Bldg 350; production not reported in FY 2009 by error.
177	Dept Navy	NAS Fallon	NV	6,650 MBtu/year Solar DHW Systems, BQs	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	BQ solar thermal DHW, FY 2010 ECIP
178	Dept Navy	Naval Base San Diego	CA	57.7 kW PV Carport 2	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	2 of 3 PV Carport systems (58kW each), total 38 Mwh reported annual report (late 2008 operation)
179	Dept Navy	Naval Base San Diego	CA	57.7 kW PV Carport 3	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	3 of 3 PV Carport systems (58kW each), total 38 Mwh reported annual report (late 2008 operation)
180	Dept Navy	Naval Base San Diego	CA	93.6 kW PV Roof, Bldg 116	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	93.6 kW Roof-Mounted PV System, Bldg 116
181	Dept Navy	Naval Base San Diego	CA	99.2 kW PV Roof, Bldg 3278	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	99.2 kW Roof-Mounted PV System, Bldg 3278
182	Dept Navy	Naval Base San Diego	CA	2.8 kW PV Roof, Bldg 3205	0.68	0.68	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	2.8 kW Roof-Mounted PV System, Bldg 3205

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183	Dept Navy	Naval Base San Diego	CA	200 kW PV Carport, McCandless Blvd Sub-Station Parking Lot	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	200 kW PV Carport McCandless Blvd Sub-Station Parking Lot
184	Dept Navy	Naval Base San Diego	CA	Solar Thermal DHW, 6 Bldgs	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Solar Thermal DHW, 6 Bldgs
185	Dept Navy	Naval Base Ventura County	CA	199 kW Roof-Mounted PV System, Bldg PH401	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	199 kW Roof-Mounted PV System, Bldg PH401
186	Dept Navy	Naval Base Ventura County	CA	298 kW Roof-Mounted PV System, Bldg PH800	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	298 kW Roof-Mounted PV System, Bldg PH800
187	Dept Navy	Naval Base Ventura County	CA	27.2 kW Roof-Mounted PV System, Bldg PH1000	187.66	187.66	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	27.2 kW Roof-Mounted PV System, Bldg PH1000
188	Dept Navy	Naval Base Ventura County	CA	Phase I - 3 - 100 kW Wind Turbines, San Nicolas Island	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Phase I - 3 - 100 kW Wind Turbines, San Nicolas Island
189	Dept Navy	Naval Base Ventura County	CA	Phase II - 400 kW Wind Turbines, San Nicolas Island	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Phase II - 400 kW Wind Turbines, San Nicolas Island
190	Dept Navy	Naval Base Ventura County	CA	Solar Thermal Pool Heating Systems, PM & PH	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Solar Thermal Pool Heating Systems, PM & PH; this portion of project split off from SNI wind, also under P-0884
191	Dept Navy	Naval Base Ventura County	CA	54 kW PV Carport, Bldg PH1100	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	54 kW PV Carport, Bldg PH1100
192	Dept Navy	NWS Seal Beach	CA	187 kW Roof-Mounted PV System, Bldg 78	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	187 kW Roof-Mounted PV System, Bldg 78
193	Dept Navy	NWS Seal Beach	CA	31 kW Roof-Mounted PV System, Bldg 110	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	31 kW Roof-Mounted PV System, Bldg 110
194	Dept Navy	NWS Seal Beach	CA	185 kW PV Shed Structure, Bldg 250	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	185 kW PV Shed Structure, Bldg 250

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195	Dept Navy	NAWC China Lake	CA	58 kW PV Carport, Michelson Lab, Phase I	326.53	326.53	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	64 kW PV Carport, Michelson Lab, Phase I
196	Dept Navy	NAWC China Lake	CA	41 kW PV Carport, Michelson Lab, Phase II	219.39	219.39	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	43 kW PV Carport, Michelson Lab, Phase II
197	Dept Navy	NAWC China Lake	CA	24 kW PV Carport, Fire Station	150.13	150.13	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	24 kW PV Carport, Fire Station
198	Dept Navy	NAWC China Lake	CA	9 kW PV Carport Addition, CBH	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	9 kW PV Carport Addition, CBH
199	Dept Navy	NAWC China Lake	CA	263 kW Roof-Mounted PV System, Bldg 02188	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	263 kW Roof-Mounted PV System, Bldg 02188
200	Dept Navy	NAWC China Lake	CA	99 kW Roof-Mounted PV System, Bldg 02466	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	99 kW Roof-Mounted PV System, Bldg 02466
201	Dept Navy	NAWC China Lake	CA	19 kW Roof-Mounted PV System, Bldg 31598	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	19 kW Roof-Mounted PV System, Bldg 31598
202	Dept Navy	NAWC China Lake	CA	688 kW PV Carports, Bldgs 20001, 31455, 00005	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	688 kW PV Carports, Bldgs 20001, 31455, 00005
203	Dept Navy	NAWC China Lake	CA	Repair Superior Valley Remote PV System	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Repair Superior Valley Remote PV System
204	Dept Navy	NSD Monterey	CA	51 kW Roof-Mounted PV System, Bldg 339	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	51 kW Roof-Mounted PV System, Bldg 339
205	Dept Navy	NSD Monterey	CA	51 kW Roof-Mounted PV System, Bldg 234	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	51 kW Roof-Mounted PV System, Bldg 234
206	Dept Navy	NSD Monterey	CA	51 kW Roof-Mounted PV System, Bldg 245	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	51 kW Roof-Mounted PV System, Bldg 245
207	Dept Navy	NAWC China Lake	CA	Ground Source Heat Pumps	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Ground Source Heat Pumps

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208	Dept Navy	Naval Base Point Loma	CA	35 kW Roof-Mounted PV System, Bldg 554 NMAWC	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	35 kW Roof-Mounted PV System, Bldg 554 NMAWC
209	Dept Navy	NAF El Centro	CA	20 kW PV Carport, Bldg 4016	122.83	122.83	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	BQ Carport; PV cost can not be broken down from MILCON cost
210	Dept Navy	NAF El Centro	CA	Solar Streetlights	13.65	13.65	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Solar Streetlights
211	Dept Navy	NAF El Centro	CA	Solar Thermal Pool Heating System	0.00	623.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Rec. Pool Heat
212	Dept Navy	NAS Lemoore	CA	14.4 kW Rooftop PV System, Bldg 50	54.59	54.59	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	14.4 kW PV Bldg 50; project built using Techval funding in place of a hangar destratification project
213	Dept Navy	Naval Base Coronado	CA	ESPC HVAC system upgrades, solar array, compressed air, irrigation and a microturbine	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	750 kW PV Carport; system went down July 2008 due to catastrophic inverter failure, presently under repair
214	Dept Navy	Naval Base Coronado	CA	675 kW Wind Farm, San Clemente Island	3,203.87	3,203.87	Increases energy security, remote location	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	3 M700 Micon NEG Wind Turbines
215	Dept Navy	Naval Base Coronado	CA	57.7 kW PV Carport adjacent to 750 kW PV Carport	313.90	313.90	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	57.7 kW Carport PV System; funded by CEP
216	Dept Navy	Naval Base Coronado	CA	51 kW Solar Integrated Roof, Bldg 352	272.96	272.96	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	51 kW Solar Integrated Roof Bldg 352
217	Dept Navy	Naval Base Coronado	CA	ESPC Decentralization and Energy Efficiency Upgrade	180.84	180.84	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	30 kW Rooftop PV System NAB Bldg 14
218	Dept Navy	Naval Base Coronado	CA	21.6 kW Rooftop PV System, Bldg 678 NAS North Island	126.24	126.24	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	21.6 kW Rooftop PV System, Bldg 678 NAS North Island

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219	Dept Navy	Naval Base Coronado	CA	80 kW Ground-Mounted, Stand-alone PV System, REWS San Clemente Island	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	80 kW Ground-Mounted, Stand-alone System, Range Electronic Warfare Station, San Clemente Island; system currently down. Projected funded by DoE.
220	Dept Navy	Naval Base Point Loma	CA	57.7 kW PV Carport, NMAWC	252.49	252.49	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	NMAWC 58 KW PV Carport; funded by CEP
221	Dept Navy	Naval Base Point Loma	CA	29.4 kW Roof-mounted PV System, Bldg 564	180.84	180.84	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	30.4 kW rooftop PV array; P-484 was split between NAF El Centro and NAVBASE Pt Loma so costs allocated equally to the two parts of the project.
222	Dept Navy	Naval Base Point Loma	CA	Solar Thermal Pool Heating System, Bldg 2 SUBASE	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Pool heating system, replaced in FY 2010.
223	Dept Navy	Naval Base San Diego	CA	57.7 kW PV Carport 1	350.30	350.30	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	1 of 3 PV Carport systems (58kW each), total 38 Mwh reported annual report (late 2008 operation)
224	Dept Navy	Naval Base San Diego	CA	14.4 kW Rooftop PV System, Bldg 3300	37.53	37.53	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	14.4 KVA system on B-3300; funded and built by PWC San Diego using surplus PV panels from NAWS China Lake
225	Dept Navy	Naval Base San Diego	CA	Approx 5,000 MBtu/year Solar Thermal Pool Heating System, ADM Prout Pool; part of Facility Design Improvements (Bundled Measures)	0.00	3,287.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	10,000 SQFT of panels on B-3279 Adm Prout Pool
226	Dept Navy	Naval Base Ventura County	CA	Solar Rooftop Generating System, Bldg 850 PH	155.93	155.93	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Bldg 850 Photovoltaic system
227	Dept Navy	Naval Base Ventura County	CA	Solar Rooftop Generating System, Bldg 806	1,108.90	1,108.90	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Bldg 806 Photovoltaic system
228	Dept Navy	Naval Base Ventura County	CA	Solar Thermal DHW System, Bldg 850	0.00	100.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Bldg 850 Solar Thermal System

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229	Dept Navy	NAWC China Lake	CA	270 mW Geothermal PPV	0.00	4,776,800.00	Provides energy security, distributed generation, reduces carbon emissions.	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	180 MW generation on Navy land, 90 MW generation on BLM land converts geothermal heat to electricity delivered to Souther Cal Edison grid. Plant owned and operated by private entity.
230	Dept Navy	NAWC China Lake	CA	117 kW PV Carport, Consolidated Bachelor Housing Office	784.76	784.76	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	117 kW PV Carport, CBH Office
231	Dept Navy	NAWC China Lake	CA	6 kW Ground-Mounted PV System, Pass & ID	34.12	34.12	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Pass/ID Office System
232	Dept Navy	NAWC China Lake	CA	50kW Remote Ground-Mounted PV System, Darwin Site	313.90	313.90	Off grid, energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	50 Kw remote site
233	Dept Navy	NBVC Ventura County, Santa Cruz Island	CA	Renewable Energy	812.06	812.06	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Remote island power, Santa Cruz Island
234	Dept Navy	NSD Monterey	CA	10 kW Roof-Mounted PV System, Bldg 232	54.59	54.59	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	10 kW Roof-Mounted PV System, Bldg 232
235	Dept Navy	NWS Seal Beach	CA	40 PV Bunker Door Lights	30.71	30.71	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	40 Bunker door lights
236	Dept Navy	NWS Seal Beach	CA	22.5 kW Roof-Mounted PV System, Bldg 16	133.07	133.07	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal	Likely Met	Supports 10 USC 2911 renewable energy goal	Likely Met	Not included in FY08 annual report
237	Dept Navy	NAS Oceana	VA		136.48	136.48	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		136 Streetlights & Security Lights
238	Dept Navy	NAS Oceana	VA	GSHP, Effluent Cooling, Lighting, Water Conservation, etc. (Dam Neck ESPC)	0.00	243,794.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Dam Neck Blgs, 521,522,524,558,585
239	Dept Navy	NAS Oceana	VA	ESPC Decentralization and Energy Efficiency Upgrade (PH I)	0.00	57,774.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Oceana PH I ESPC

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240	Dept Navy	NAS Oceana	VA	MILCON Child-Development Center Ground-source Heat Pump	0.00	519.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Oceana Child Development Ctr
241	Dept Navy	NAS Oceana, Dam Neck	VA	ESPC Ground Source Heat Pumps and Steam Plant Decommissioning	0.00	590.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Dam Neck Bldg 448
242	Dept Navy	Naval Station Norfolk	VA		0.00	1,000.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		pool heat; SYSTEM NO LONGER OPERATIONAL
243	Dept Navy	Naval Station Norfolk	VA		0.00	5,000.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		solar ventilation pre-heat; SYSTEM NO LONGER OPERATIONAL
244	Dept Navy	NAVFACLANT Norfolk, VA	VA		0.00	100.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
245	Dept Navy	WPNSTA Charleston, SC	SC	UESC HVAC System and Controls, Lighting System and Controls and Low Flow Fixtures (Bundled Measures)	0.00	150.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Ground Source Heat Pumps
246	Dept Navy	Hampton Roads Region - Multiple Activities	VA	ARRA PV - 2.5 MW			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		ARRA MILCON funded
247	Dept Navy	NSA Norfolk - Northwest Annex	VA	Building 41 HVAC Upgrade Ground Source Heat Pump						Supports 10 USC 2911 renewable energy goal		Project awarded and under construction, 180 ton GSHP to replace over 350 tons conventional HVAC, NWA Building 41
248	Dept Navy	NSA Norfolk - Northwest Annex	VA	Ground-source Heat Pump and/or Solar Wall - Under development FY11 Renewable ECIP Project						Supports 10 USC 2911 renewable energy goal		Project is in defining SOW phase, pre-design phase

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249	Dept Navy	NSA Norfolk	VA	Ground-source Heat Pump and/or Solar Wall - Under development FY11 Renewable ECIP Project						Supports 10 USC 2911 renewable energy goal		Project is in defining SOW phase, pre-design phase
250	Dept Navy	JEB Little Creek-Fort Story	VA	ECIP - Ground-source Heat Pump								Removed 16.5k sf bldg from steam line
251	Dept Navy	JEB Little Creek-Fort Story	VA	ECIP - Ground-source Heat Pump								Identified 6 bldgs to convert, and remove 1 mile of steam line
252	Dept Navy	JEB Little Creek-Fort Story	VA	Wind Turbines								Install 3, 3.7kw wind turbines.
253	Dept Navy	NAVSTA Newport	RI	Building Level Wind Turbine	0.00	0.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		NWC Bldg level wind turbine1.5 KW, 2 ea 3.5 KW
254	Dept Navy	NNSY	VA	ARRA ECIP - Roof top PV Array and high efficiency lighting								Bldg 1531
255	Dept Navy	NAVSTA Norfolk	VA	ARRA ECIP - Roof top PV Array and high efficiency lighting								Bldg T26
256	Dept Navy	NAS Oceana	VA	ECIP - Renewable Energy Systems			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Bldgs 285, 333 (NAS Oceana)
257	Dept Navy	NAS Oceana	VA	ARRA ECIP - Renewable Energy Systems			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Bldg 111
258	Dept Navy	NSA Annapolis	MD	Install roof Mounted PV Panels at Bldg 234NS	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		200 KW Roof Mounted Solar Panels, being installed under ARRA Funding
259	Dept Navy	NAS Pax River	MD	Install Roof Mounted PV Panels at Bldg 514	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		80 KW Roof Mounted Solar Panels, being installed under ARRA Funding
260	Dept Navy	NSWC Carderock	MD	Install Roof Mounted PV Panels at Bldg 4	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		180 KW Roof Mounted Solar Panels, being installed under ARRA Funding
261	Dept Navy	NAVSTA Anacostia	DC	Install Roof Mounted PV Panels at Bldg 351	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		200 KW Roof Mounted Solar Panels, being installed under ARRA Funding

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262	Dept Navy	NSA South Potomac Indian Head	MD	Facility Energy Improvments	0.00	0.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Installs Geothermal Heat Pumps at Bld 748, 759, 763, and 1741
263	Dept Navy	NSA Souda Bay, GR	Greece	20 KW Solar Carport								
264	Dept Navy	NSA Naples, IT		300 KW PV								
265	Dept Navy	NAS Sigonella, IT		Solar Street Lighting								
266	Dept Navy	NAS Sigonella, IT		Solar Pool Heating (NAS 1)								
267	Dept Navy	NAS Sigonella, IT		Solar Pool Heating (NAS 2)								
268	Dept Navy	NAVSTA Rota, SP		ESPC Phase 1-Roof Top PV								
269	Dept Navy	NSA Souda Bay, GR	Greece	Solar Hot Water-CB Barracks		150.00						
270	Dept Navy	NSA Souda Bay, GR	Greece	Solar Hot Water-Phase II		349.00						
271	Dept Navy	NAVSTA Whidbey	WA	Provide Facility Daylighting and Solar Walls in various hangars at Naval Air Station Whidbey			Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
272	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Systems, Various housing units	0.00	14,500.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Solar Water Heating Systems, Various housing units
273	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Carport, Sub-Piers	0.00	3,920.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Solar Water Heating Carport, Sub-Piers
274	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Carport, NAVSTA	0.00	3,584.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Solar Water Heating Carport, NAVSTA
275	Dept Navy	Naval Station Pearl Harbor	HI	Solar Water Heating Systems, Various housing units	0.00	2,200.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Hot water for housing
276	Dept Navy	NAVFAC Hawaii	HI	309 KW PV Array, B54, Ford Island	1,706.00	1,706.00	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		309 KW PV Array, B54, Ford Island

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277	Dept Navy	NAVFAC Hawaii	HI	107 kW PV Array, Halsey Terrace Community Center	532.27	532.27	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		107 kW PV Array, Halsey Terrace Community Center
278	Dept Navy	NAVFAC Hawaii	HI	PV power systems for remote utility assets	75.06	75.06	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		PV power systems on Ford Island
279	Dept Navy	NAVFAC Hawaii	HI	2 KW PV Array, B166, NAVSTA	10.24	10.24	Reduces grid demand, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		2 KW PV Array, B166, NAVSTA
280	Dept Navy	NAVFAC Hawaii	HI	Solar Water Heating Systems, Fort Kamehameha WWTF	0.00	50.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Solar Water Heating Systems, Fort Kamehameha WWTF
281	Dept Navy	NAVFAC Hawaii	HI	Solar Water Heating System, Building X-11, NAVFAC HI Compound	0.00	23.00	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Solar Water Heating System, Building X-11, NAVFAC HI Compound
282	Dept Navy	COMFLEACT Yokosuka	Japan	Solar-powered street lights for off-grid lighting (near camping area)	0.94	0.94		Allows street lights to be installed at a location far from grid connection (would have been costly), while using clean energy	Currently Met	Certainly supports DoD renewable energy goals, but not a significant contributor.		3 solar PV street lights, installed along a road with no electric power supply otherwise. Lights installed by contractor for MWR department.
283	Dept Navy	NAVAL AIR FACILITY ATSUGI	Japan	10 Kw Ground Mounted Solar PV Array	34.12	34.12	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
284	Dept Navy	NSF	Diego Garcia	Install Solar Powered Street Lights	3.40	3.40	Reduces fossil fuel use, increases energy security	Supports EPACT 2005 energy goal	Likely Met	Supports EPACT 2005 energy goal	Likely Met	15 Solar Street Lights
285	Dept Navy	COMFLEACT Okinawa	Japan	BIPV for Camp Shields Warehouse Bldg 8222	252.64	252.64	Reduces fossil fuel use, increases energy security	Supports EPACT 2005 energy goal		Supports EPACT 2005 energy goal		BIPV Roofing
286	Dept Navy	COMFLEACT Chinhae Korea		Solar Streetlighting	6.83	6.83	Reduces fossil fuel use, increases energy security	Supports EPACT 2005 energy goal		Supports EPACT 2005 energy goal		Solar powered street lights

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287	Dept Navy	Naval Base,Guam	GU	Solar Hot Water Heating, Facility Energy Improvements			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
288	Dept Navy	Naval Base,Guam	GU	Solar Photovoltaic Arrays, Barracks 1 & 2			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
289	Dept Navy	Naval Base,Guam	GU	Energy Conservation Measures, Solar Photovoltaic Arrays (250KW)			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		ECM 11.1: Solar PhotoVoltaic
290	Dept Navy	Naval Base,Guam	GU	Bldg. 631 (DRMO), Building Integration Photovoltaic (BIPV)	196.65	196.65	Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
291	Dept Navy	Naval Base,Guam	GU	Install Water Heating, B582, B583 & B585			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
292	Dept Navy	Naval Base,Guam	GU	P-469, Bachelors Enlisted Quarters			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		Milcon Project
293	Dept Navy	Naval Station Pearl Harbor	HI	Rooftop Mounted Photovoltaic Systems			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
294	Dept Navy	Pacific Missile Range Facility	HI	Rooftop Mounted Photovoltaic Systems			Reduces fossil fuel use, increases energy security	Supports 10 USC 2911 renewable energy goal		Supports 10 USC 2911 renewable energy goal		
295	Dept Navy	MCAS Cherry Point	NC	50KW PV system - Warehouse (Building 1016)	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
296	Dept Navy	MCAS Cherry Point	NC	50 KW PV system - General Warehouse (Building 159)	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
297	Dept Navy	MCAS Cherry Point	NC	30 KW PV system - Theater (Building 194)	179	179	Limited	Contributes	Contributes	Contributes	Contributes	

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298	Dept Navy	MCAS Beaufort	SC	Install 60 Government Provided Solar Power Security Lights	16	16	Limited	Contributes	Contributes	Contributes	Contributes	
299	Dept Navy	MCAS Beaufort	SC	Solar Domestic Hot Water at O-Club (ECM in Beaufort ESPC III)	160	160	Limited	Contributes	Contributes	Contributes	Contributes	
300	Dept Navy	MCAS Yuma	AZ	Solar PV Sunshade (structure 233)	190	190	Limited	Contributes	Contributes	Contributes	Contributes	
301	Dept Navy	MCAS Yuma	AZ	Solar PV Metal Sunshades (Bldg 1239 & Bldg 1235)	191	191	Limited	Contributes	Contributes	Contributes	Contributes	
302	Dept Navy	MCAS Yuma	AZ	Solar PV (Bldg 1958) Clearwell	194	194	Limited	Contributes	Contributes	Contributes	Contributes	
303	Dept Navy	MCAS Yuma	AZ	Solar Electric Vehicle Charging Station (Bldg 603)	42	42	Limited	Contributes	Contributes	Contributes	Contributes	
304	Dept Navy	MCAS Yuma	AZ	Environmental BIPV Roof (Bldg 228)	120	120	Limited	Contributes	Contributes	Contributes	Contributes	
305	Dept Navy	MCAS Miramar	CA	30 KW Solar Roof mounted & Thermal applications	1,007	1,007	Limited	Contributes	Contributes	Contributes	Contributes	
306	Dept Navy	MCAS Miramar	CA	260 KW Solar Carport	1,184	1,184	Limited	Contributes	Contributes	Contributes	Contributes	
307	Dept Navy	MCAS Miramar	CA	300 KW Solar roof and Carport	1,481	1,481	Limited	Contributes	Contributes	Contributes	Contributes	
308	Dept Navy	MCAS Miramar	CA	Replacing Parking lot lights with Solar Units in Area 5	287	287	Limited	Contributes	Contributes	Contributes	Contributes	
309	Dept Navy	MCAS Miramar	CA	216 KW Solar Carport	1,287	1,287	Limited	Contributes	Contributes	Contributes	Contributes	
310	Dept Navy	MCAS Miramar	CA	Replaced Parking lot lights with Solar Units near Hangars 5 & 6	61	61	Limited	Contributes	Contributes	Contributes	Contributes	

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311	Dept Navy	MCAS Miramar	CA	Replaced Parking lot lights with Solar Units near Buildings 6003 & 6004	61	61	Limited	Contributes	Contributes	Contributes	Contributes	
312	Dept Navy	MCAS Pendleton	CA	134kW Solar PV Array - Roof Mounted (Bldgs 23208/23210)	801	801	Limited	Contributes	Contributes	Contributes	Contributes	
313	Dept Navy	MCAS Pendleton	CA	53kW Solar PV Array - Roof Mounted (Bldg 23209)	317	317	Limited	Contributes	Contributes	Contributes	Contributes	
314	Dept Navy	MCB Quantico	VA	Marathon Building (B3399)	120	120	Limited	Contributes	Contributes	Contributes	Contributes	
315	Dept Navy	MCB Camp Lejeune	NC	B1316 - completion expected 6/21/2010	419	419	Limited	Contributes	Contributes	Contributes	Contributes	
316	Dept Navy	MCB Camp Lejeune	NC	B1317 - completion expected 6/21/2010	419	419	Limited	Contributes	Contributes	Contributes	Contributes	
317	Dept Navy	MCB Camp Lejeune	NC	Roofs 1116, 1211, and 1212 - 288 kW per roof. Completion expected 12/21/2010	5,166	5,166	Limited	Contributes	Contributes	Contributes	Contributes	
318	Dept Navy	MCB Camp Lejeune	NC	TBD - facilities and possibly open areas where a PV array would be feasible	11,361	11,361	Limited	Contributes	Contributes	Contributes	Contributes	
319	Dept Navy	MCAGCC 29 Palms	CA	ESPC / 1.2 MW Solar Array	6,576	6,576	Limited	Contributes	Contributes	Contributes	Contributes	
320	Dept Navy	MCAGCC 29 Palms	CA	Range 500	90	90	Limited	Contributes	Contributes	Contributes	Contributes	
321	Dept Navy	MCAGCC 29 Palms	CA	Remote repeater stations	975	975	Limited	Contributes	Contributes	Contributes	Contributes	
322	Dept Navy	MCAGCC 29 Palms	CA	Walkway lighting - Areas 1100,1200, and 1300	9	9	Limited	Contributes	Contributes	Contributes	Contributes	

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323	Dept Navy	MCAGCC 29 Palms	CA	Buildings 2056, 2057 & 2058 (Vehicle Holding Sheds)	694	694	Limited	Contributes	Contributes	Contributes	Contributes	
324	Dept Navy	MCAGCC 29 Palms	CA	Vehicle holding Sheds (Buildings 2067, 2068, 1201, 1202, and 2008)	2,894	2,894	Limited	Contributes	Contributes	Contributes	Contributes	
325	Dept Navy	MCAGCC 29 Palms	CA	B2009 (Vehicle Holding Shed)	694	694	Limited	Contributes	Contributes	Contributes	Contributes	
326	Dept Navy	MCAGCC 29 Palms	CA	BEQs 1462-1463	460	460	Limited	Contributes	Contributes	Contributes	Contributes	
327	Dept Navy	MCAGCC 29 Palms	CA	Building 2050	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
328	Dept Navy	MCAGCC 29 Palms	CA	Building 1231 & 1233	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
329	Dept Navy	MCAGCC 29 Palms	CA	Building 1229 & 1230	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
330	Dept Navy	MCAGCC 29 Palms	CA	B2048	442	442	Limited	Contributes	Contributes	Contributes	Contributes	
331	Dept Navy	MCAGCC 29 Palms	CA	B2049	442	442	Limited	Contributes	Contributes	Contributes	Contributes	
332	Dept Navy	MCAGCC 29 Palms	CA	B2051	442	442	Limited	Contributes	Contributes	Contributes	Contributes	
333	Dept Navy	MCAGCC 29 Palms	CA	B1203	287	287	Limited	Contributes	Contributes	Contributes	Contributes	
334	Dept Navy	MCAGCC 29 Palms	CA	B1204	287	287	Limited	Contributes	Contributes	Contributes	Contributes	
335	Dept Navy	MCAGCC 29 Palms	CA	B1205	287	287	Limited	Contributes	Contributes	Contributes	Contributes	
336	Dept Navy	MCAGCC 29 Palms	CA	B1222	257	257	Limited	Contributes	Contributes	Contributes	Contributes	
337	Dept Navy	MCAGCC 29 Palms	CA	B1251	179	179	Limited	Contributes	Contributes	Contributes	Contributes	
338	Dept Navy	MCAGCC 29 Palms	CA	B1801	203	203	Limited	Contributes	Contributes	Contributes	Contributes	
339	Dept Navy	MCAGCC 29 Palms	CA	B1802	203	203	Limited	Contributes	Contributes	Contributes	Contributes	
340	Dept Navy	MCAGCC 29 Palms	CA	B1803	203	203	Limited	Contributes	Contributes	Contributes	Contributes	
341	Dept Navy	MCAGCC 29 Palms	CA	B1804	203	203	Limited	Contributes	Contributes	Contributes	Contributes	
342	Dept Navy	MCAGCC 29 Palms	CA	B1805	203	203	Limited	Contributes	Contributes	Contributes	Contributes	
343	Dept Navy	MCAGCC 29 Palms	CA	GTF Tracked Sunshades	5,980	5,980	Limited	Contributes	Contributes	Contributes	Contributes	
344	Dept Navy	MCB Camp Pendleton	CA	46KW PV Array Roof Mounted Bldg 31917	281	281	Limited	Contributes	Contributes	Contributes	Contributes	
345	Dept Navy	MCB Camp Pendleton	CA	32KW PV Array Roof Mounted Bldgs 22111 and 22112	191	191	Limited	Contributes	Contributes	Contributes	Contributes	
346	Dept Navy	MCB Camp Pendleton	CA	43KW PV Array Roof Mounted on Bldgs 2246 and 2253	225	225	Limited	Contributes	Contributes	Contributes	Contributes	
347	Dept Navy	MCB Camp Pendleton	CA	14KW PV Array and Solar Thermal Ground Mounted 14 Area Pool	86	86	Limited	Contributes	Contributes	Contributes	Contributes	

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348	Dept Navy	MCB Camp Pendleton	CA	32KW PV Array and Solar Thermal Ground Mounted 62 and 53 Area Pools	173	173	Limited	Contributes	Contributes	Contributes	Contributes	
349	Dept Navy	MCB Camp Pendleton	CA	30KW PV Array Roof Mounted Bldg 22113	179	179	Limited	Contributes	Contributes	Contributes	Contributes	
350	Dept Navy	MCB Camp Pendleton	CA	75KW PV Array Roof Mounted Bldg 2251	448	448	Limited	Contributes	Contributes	Contributes	Contributes	
351	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Roof Mounted Bldg 22114 & Electrical Service Upgrade	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
352	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Roof Mounted Bldg 2252	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
353	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Carport Mounted Bldg 430715	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
354	Dept Navy	MCB Camp Pendleton	CA	10 KW PV Array Carport Mounted Bldg 2291 & 22 motorpool	60	60	Limited	Contributes	Contributes	Contributes	Contributes	
355	Dept Navy	MCB Camp Pendleton	CA	288 (240 w) streetlights	356	356	Limited	Contributes	Contributes	Contributes	Contributes	
356	Dept Navy	MCB Camp Pendleton	CA	5KW PV Array Roof Mounted 33 Area Fitness Center	30	30	Limited	Contributes	Contributes	Contributes	Contributes	
357	Dept Navy	MCB Camp Pendleton	CA	50KW PV Array Roof Mounted Building 41404	299	299	Limited	Contributes	Contributes	Contributes	Contributes	
358	Dept Navy	MCB Camp Pendleton	CA	66 KW PV on Buildings 41408 and 41409	395	395	Limited	Contributes	Contributes	Contributes	Contributes	
359	Dept Navy	MCB Camp Pendleton	CA	252 KW Recycling Center and 43 Area Artillery Shed.	1,507	1,507	Limited	Contributes	Contributes	Contributes	Contributes	
360	Dept Navy	MCB Camp Pendleton	CA	1.445 MW Box Canyon landfill	8,640	8,640	Limited	Contributes	Contributes	Contributes	Contributes	

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361	Dept Navy	MCB Camp Pendleton	CA	1.0 - 1.5 MW Box Canyon landfill	7,175	7,175	Limited	Contributes	Contributes	Contributes	Contributes	
362	Dept Navy	MCB Camp Pendleton	CA	Daylighting Harvesting Systems (300)	761	761	Limited	Contributes	Contributes	Contributes	Contributes	
363	Dept Navy	MCB Camp Pendleton	CA	Ground Source Heat Pump (100 Tons)	4,143	4,143	Limited	Contributes	Contributes	Contributes	Contributes	
364	Dept Navy	MCB Hawaii	HI	32 KW Building Integrated Photovoltaic Roofing, Bldg 1027	173	173	Limited	Contributes	Contributes	Contributes	Contributes	
365	Dept Navy	MCB Hawaii	HI	32 KW Building Integrated Photovoltaic Roofing, Bldg 1045	170	170	Limited	Contributes	Contributes	Contributes	Contributes	
366	Dept Navy	MCB Hawaii	HI	Solar Hot Water System, Bldg 503	1,062	1,062	Limited	Contributes	Contributes	Contributes	Contributes	
367	Dept Navy	MCB Hawaii	HI	Skylights and Lighting Upgrades, Bldg 6469	66	66	Limited	Contributes	Contributes	Contributes	Contributes	
368	Dept Navy	MCB Hawaii	HI	Solar Hot Water System, Bldg 386 and Lighting Upgrades, Bldg 375	255	255	Limited	Contributes	Contributes	Contributes	Contributes	
369	Dept Navy	MCRD San Diego	CA	6 adjacent warehouse rooftops	1,317	1,317	Limited	Contributes	Contributes	Contributes	Contributes	
370	Dept Navy	MCRD San Diego	CA	* 250 KW PV system on the roof of buildings 218, 219, 223, 233, 234, 238. * 250 KW PV system on the roof of buildings 225, 226, 227, 228, 231, 232	2,928	2,928	Limited	Contributes	Contributes	Contributes	Contributes	
371	Dept Navy	MCRD San Diego	CA	*1.5MW ground mounted PV system	8,785	8,785	Limited	Contributes	Contributes	Contributes	Contributes	

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372	Dept Navy	MCLB Barstow	CA	1.5 MW wind turbine	15,696	15,696	Limited	Contributes	Contributes	Contributes	Contributes	
373	Air Force	Hill AFB, Utah	UT	Hill AFB Landfill Gas to Energy	34	34	Reduced purchase requirements. On-site generation capability.	Expand Hill AFB's renewable energy portfolio. Location and size of the project do not facilitate dedicating this resource to a specific building.	Currently Met	The project's intent was to expand the existing community relationship with Wasatch Integrated Waste Management District and to offset Hill AFB's purchased electricity quantity and cost.	Currently Met	Landfill gas to electrical energy generation facility. Commissioned in Jan 2005. Expanded plant capacity in Jun 2008.
374	Air Force	Hill AFB, Utah	UT	Purchased Steam from Offsite Municipal Solid Waste-to-Energy Facility	0	444,476	Purchased steam provides ready backup for the primary heat plant serving the military industrial complex during planned and unplanned outages. Reducing self generation requirements during peak heating months reduces cost exposure to higher seasonal spot-	Provide a reliable backup source of steam for facility heating and process heat loads in the military industrial complex located in the southeast area of the installation.	Currently Met	At the time of project initiation, renewable energy goals were not a consideration. Renegotiation and continued utilization of this utility commodity provides a significant benefit towards Hill AFBs DoD renewable energy goals.	Currently Met	Steam is purchased from local municipal solid waste facility. The facility has been producing and delivering steam since 1987.
375	Air Force	Hill AFB, Utah	UT	200 KW - Ground Based PV Array	0	0	Reduced purchase requirements. On-site generation capability.	Expand Hill AFB's renewable energy portfolio. Location and size of the project do not facilitate dedicating this resource to a specific building.	Currently Met	The project goal was to expand Hill AFB's renewable energy portfolio.	Currently Met	Project completed and commissioned Jun 2009.

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376	Air Force	Buckley, AFB, CO	CO	ECIP-Install 1000kW Solar Photovoltaic (PV) Panels	9,956	9,956	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13123	Contributes toward goal	Planned grid connected solar farm
377	Air Force	Buckley, AFB, CO	CO	Install Solar Panels Bldg 26 (1 ea 10kW)	100	100	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13124	Contributes toward goal	10 kW solar roof installations
378	Air Force	Buckley, AFB, CO	CO	Install Solar Panels Bldg 1005 (1 ea 10kW)	100	100	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13124	Contributes toward goal	10 kW solar roof installations
379	Air Force	F.E. Warren, WY	WY	Install 2MW Wind Turbine	17,939	17,939	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13125	Contributes toward goal	Congressional insert through NDAA; Sen Murtha; Turbine #3
380	Air Force	F.E. Warren, WY	WY	Install Wind Turbines (2 ea 660 kW)	11,840	11,840	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13126	Contributes toward goal	Turbine #1 & 2
381	Air Force	Los Angeles AFB, CA	CA	Photo Voltaic System, Lighting Retrofit B/251 Commissary (145kW AC)	144	144	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13123	Contributes toward goal	Solar Roof DECA (Commissary)
382	Air Force	Peterson AFB, CO	CO	Construct Jogging Path Solar Lighting	25	25	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13124	Contributes toward goal	7350 ft solar jogging path; decommissioning FY10-FY11
383	Air Force	Schriever AFB, CO	CO	P2-GPP, Green Product Substitution (Install Solar Panels at CDC)	32	32	Reduced base load, increases energy security.	Contribute toward goal of EO13123	Contributes toward goal	Contribute toward goal of EO13125	Contributes toward goal	Child Development Center - Environmental Funded for educational/awareness purposes.
384	Air Force	Patrick AFB, FL	FL	Repair/Replace Ground Source Heat Pump(15 Ton -GSHP)	0	0	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	Ground Source Heat Pump, Costs shown are estimated savings
385	Air Force	Malmstrom AFB, MT	MT	AFS021 Ground Source Heat Pump at Dorm 740 (25 Ton)	0	0	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	GSHP - Contributes to Goal by saving energy	Ground Source Heat Pump, Costs shown are estimated savings
386	Air Force	Ascension AAF		Wind Generator Farm (4 x 225KW generators)	8,072	8,072	All energy from on-site generation, renewables replace fuel oil usage for generators.	All energy from on-site generation, renewables replace fuel oil usage for generators.	Currently Met	NA - no utilites available other than on-site generated.	Currently Met	Wind Turbine to supplement on-site generation of electricity

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387	Air Force	Ascension AAF		Wind Generator Farm (2 x 900KW generators)	16,145	16,145	All energy from on-site generation, renewables replace fuel oil usage for generators.	All energy from on-site generation, renewables replace fuel oil usage for generators.	Currently Met	NA - no utilities available other than on-site generated.	Currently Met	Wind Turbine to supplement on-site generation of electricity
388	Air Force	Ascension AAF		SOLAR POWER (PV) SYSTEM (150Kw)	149	149	All energy from on-site generation, renewables replace fuel oil usage for generators.	All energy from on-site generation, renewables replace fuel oil usage for generators.	Currently Met	NA - no utilities available other than on-site generated.	Currently Met	Photo Cells to supplement on-site generation of electricity
389	Air force	Homestead, Florida	FL	Install lights for walking/historicall area	0	0	Negligible	Provide source of lighting that does not consume electricity from the grid	Currently Met	negligible	Currently Met	Walkway lights
390	Air Force	March ARB, California	CA	Construct PV system	2	2	Offset reduced the amount of electricity purchased from local provider	Provides more than the base's renewable goal and provides greatest share of AFRC's goals	Currently Met	small	Currently Met	Project accomplished in two [parts via an 05 ECIP & 06 ECIP
391	Air Force	March ARB, California	CA	Install PV power Parking and Storage Lot Lights	0	0	Negligible	Provide source of lighting that does not consume electricity from the grid	Currently Met	negligible	Currently Met	Storage lot lights
392	Air Force	Aviano AB / Italy		CNS (160KWH+160K WH) GEOTHERMAL SYS AT FITNESS CTR, B1405				Produce cold water for Air Conditioning season and sanitary hot water	Likely Met	EPAct of 2005	Likely Met	
393	Air Force	Incirlik AB / Turkey		Install Solar Hot in Various Facilities				Produce sanitary hot water	Likely Met	EPAct of 2005	Likely Met	
394	Air Force	RAF Mildenhall/ UK		RAF Mildenhall Visiting Officers Quarters				Produce sanitary hot water		EPAct of 2005		

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395	Air Force	Moron AB / Spain		1.1MW Solar PV Farm-ground mounted				Produce renewable power for the installation	Likely Met	EPAct of 2005	Likely Met	
396	Air Natl Guard	Sky Harbor ANGB, Phoenix	AZ	16.8 kw solar PV Array-carport mounted - On Base	11	11	No, because of small size doesn't accomplish anything towards Energy Security	Begin investing in self generated energy	Currently Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	
397	Air Natl Guard	Fresno-Yosemite ANGB	CA	660 kw solar PV Array-Roof/carport mounted - On Base	3,002	3,002	Could provide partial Energy Security Support. Because of grid tie, if grid goes down, generation system is shut down to prevent back feeding.	Reduces energy costs.	Currently Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	
398	Air Natl Guard	Rosecrans ANGB, St. Joeseph	MO	160 kw Solar PV Roof Mounted - On Base	119	119	No, because of small size doesn't accomplish anything towards Energy Security	Reduces energy costs.	Currently Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	
399	Air Natl Guard	Rosecrans ANGB, St. Joeseph	MO	12 kw Solar PV Roof Mounted - On Base			No, because of small size doesn't accomplish anything towards Energy Security	Reduces energy costs.	Currently Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	
400	Air Natl Guard	Camp Perry ANGS	OH	188 kw Thin-Film Solar PV Ground Array - On Base	129	129	Could provide partial Energy Security Support. Because of grid tie, if grid goes down, generation system is shut down to prevent back feeding.	Reduces energy costs.	Currently Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	

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401	Air Natl Guard	Camp Perry ANGS	OH	.65M wind turbine - On Base			Could provide partial Energy Security Support. Because of grid tie, if grid goes down, generation system is shut down to prevent back feeding.	Reduces energy costs.	Likely Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	
402	Air Natl Guard	Toledo ANGB	OH	783 kw Thin-Film Solar PV Ground Array - On Base	2,672	2,672	Could provide partial Energy Security Support. Because of grid tie, if grid goes down, generation system is shut down to prevent back feeding.	Reduces energy costs.	Currently Met	Renewable Energy generated are being included in attaining DOD goals	Currently Met	
403	Air Natl Guard	Toledo ANGB	OH	400 kw Thin-Film Solar PV Ground Array - On Base			Could provide partial Energy Security Support. Because of grid tie, if grid goes down, generation system is shut down to prevent back feeding.	Reduces energy costs.	Likely Met	Renewable Energy generated are being included in attaining DOD goals	Likely Met	
404	Air Natl Guard	Peoria ANGB	IL	84.75 Ton - Ground Source Heat Pumps - 1 Facility			Reduces amount of Nat. Gas and Electricity needed to keep facility operation during interruption but doesn't result in any significant impact to Energy Security,	Reduces energy consumption and costs.	Likely Met	Implementation of Ground Source Heat Pump was to reduce consumption and costs as they weren't considered Renewable Energy at the time of facility design	Likely Met	Geo-thermal Heat Pump System was part of original construction. Determining exact renewable energy savings is estimated and not based on factual data.

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405	Air Force	Altus AFB	OK	492 Watt PV (misc items) - on Base	2	2	Flexibility	provide power to equipment	Currently Met	too small to impact DoD goal	Currently Met	Solar: Giant Voice systems (30W each total 11 tower), Lighting for POL pump House (54W), Sooner Drop zone ( 108 W), Measure in DC rating. Calculation base on total DC rating (492 W) using PVWATTS version 2. IAW PVWATTS version 2, min DC rating was 4 KW,
406	Air Force	Goodfellow AFB	TX	1.8 KW PV (misc items) - on Base	9	9	Flexibility	provide power to equipment	Currently Met	too small to impact DoD goal	Currently Met	Giant Voice - .640 kw x (10 hours per day x 365.25 days) = 2338 (includes all 6); 6 pedestrian lights x .1 kw x (10 hours per day x 365.25 days) = 2192; 2 red pedestrian lights x .055 kw x (10 hours per day x 365.25 days x 5/7) = 402 kwh; street light .1
407	Air Force	Lackland AFB	TX	1.29 KW PV (misc items) - on Base	6	6	Flexibility	provide power to equipment	Currently Met	too small to impact DoD goal	Currently Met	43 giant voice, 30watts dc each=1.8KW
408	Air Force	Laughlin AFB	TX	6 KW Roof Mounted Small Wind Turbines	3	3	Flexibility	provide power to building	Likely Met	help meet DoD & EPACT05 goals	Currently Met	6 - 1KW AeroVent Wind turbines mounted on windward side of parapet wall
409	Air Force	Luke AFB	AZ	350KW Rooftop PV system	1,484	1,484	Flexibility	provide power to building	Likely Met	help meet DoD & EPACT05 goals	Currently Met	Honeywell ESPC (DoE), Task Order 4, PV installed in two phases
410	Air Force	Hickam AFB	HI	67.2 kW solar PV array - roof mounted on Bldg 2155				Produce electricity for building 2155	Likely Met	Project is to help with the requirement to have renewable energy production/purchased on the installation	Likely Met	Does not meet 1MW criteria alone, but being done in conjunction with another project
411	Air Force	Hickam AFB	HI	79.8 kW solar PV array - roof mounted on Bldg 1050				Produce electricity for building 1050	Likely Met	Project is to help with the requirement to have renewable energy production/purchased on the installation	Likely Met	Does not meet 1MW criteria alone, but being done in conjunction with another project
412	Air Force	Andersen AFB	GU	Solar Domestic Hot Water Heaters				Provide hot water to Buildings 18001, 18006, 25005 and 26006	Likely Met		Likely Met	Solar Domestic Hot Water Heaters on Buildings 18001, 18006, 25005 and 26006
413	Air Force	Kadena AB	Japan	Install Solar PV, Replace HVAC, AH, & Lighting B176				Reduce overall building consumption	Likely Met	Consumption reduction	Likely Met	On base PV to reduce overall electrical consumption of one building.

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414	Air Force	Kadena AB	Japan	Install Solar PV, Replace HVAC, AH, & Lighting B177				Reduce overall building consumption	Likely Met	Consumption reduction	Likely Met	On base PV to reduce overall electrical consumption of one building.
415	Air Force	Kadena AB, Camp Lester	Japan	Two Solar PV Domestic Hot Water Systems				Demonstration project		Consumption reduction		Solar hot water tank for Domestic Hot Water use. Installed as a prototype.
416	Air Force	Eielson AFB	AK	Install Wind Generators & Solar Controllers								Project supplemented the Thermo Electric Generators with solar panels & wind turbines @ remote Tracking Instrument Subsystem sites
417	Air Force	Grand Forks AFB, ND	ND	REPAIR HVAC-GROUND SOURCE HEAT PUMP-CATM(R/M)	127	127	This project will help our base get off the grid	This project will generate renewable energy, save energy and help with energy security.	Currently Met	This project will generate renewable energy, save energy, and help with energy security.	Currently Met	
418	Air Force	Grand Forks AFB, ND	ND	REPAIR HVAC-GSHP-RECYCLING FAC (R/M)	132	132	This project will help our base get off the grid	This project will generate renewable energy, save energy and help with energy security.	Currently Met	This project will generate renewable energy, save energy, and help with energy security.	Currently Met	
419	Air Force	Grand Forks AFB, ND	ND	REPAIR HVAC-GSHP-COMM SQ HQ (R/M)	3,800	3,800	This project will help our base get off the grid	This project will generate renewable energy, save energy, save money and help with energy security.	Currently Met	This project will generate renewable energy, save energy, save money and help with energy security.	Currently Met	
420	Air Force	Charleston AFB, NC	SC	Charleston AFB ESPC			Reduced energy load for the base	Reduce Base energy load from the grid and accomplish mandated reduction goals	Currently Met		Currently Met	Installed geothermal heat pumps
421	Air Force	USAF Academy	CO	Purchase Renewable Energy from On-Base Solar Array	22,900	22,900	Reduces energy required from grid	On-site generated renewable energy				
422	Air Force	USAF Academy	CO	Install Solar Roof Vandenberg Hall	1,240	1,240	Reduces energy required from grid	On-site generated renewable energy				

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423	Air Force	USAF Academy	CO	Install Solar Roof Multiple Facilities	2,540	2,540	Reduces energy required from grid	On-site generated renewable energy				
424	Air Force	MINOT AFB, ND	ND	Repair HVAC/Elec Community Center, Bldg 202	0	1,400	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	
425	Air Force	MINOT AFB, ND	ND	Install Ground Source Heat Pumpt bldg 546	0	3,475	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	No BLCC on file, but shows a savings of \$36k/yr
426	Air Force	MINOT AFB, ND	ND	Replace HVAC Bldg 167-BW (GSHP)	0	840	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	
427	Air Force	MINOT AFB, ND	ND	Bldg 545 (GSHP)	0	130	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	The project was part of new construction(MILCON) - no BLCC was done.
428	Air Force	MINOT AFB, ND	ND	Install GSHP Bldgs 210 & 211	0	3,000	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	Dorm renovation which included adding GSHPs
429	Air Force	MINOT AFB, ND	ND	Repair HVAC Bldg 445-CE (GSHP)	0	1,680	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	
430	Air Force	MINOT AFB, ND	ND	GSHP Bldg 186	0	500	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	The project was part of new construction(AAFES) project - no BLCC was done and project costs data was not provided to Civil Engineering
431	Air Force	MINOT AFB, ND	ND	Construct Bldg 394	0	100	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	The project was part of new construction(MILCON) - no BLCC was done.
432	Air Force	OFFUTT AFB, NE	NE	GSHP	0	45,404	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	
433	Air Force	DAVIS-MONTAN AFB	AZ	Daylighting	0	4,904	None	Minimize lighting energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	

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434	Air Force	BARKSDALE AFB	LA	Daylighting (Repr AC Hgr Lighting)	0	396	None	Minimize lighting energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	Small part of project incl'd daylight dim'g, This was not generation. Reported per 2.2.2 towards EO13423 (FEMP Guidance 28 Jan 08)
435	Air Force	BARKSDALE AFB	LA	Daylighting (B6626)	0	73	None	Minimize lighting energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	Skylights installed as component of ESPC, portion of cost allocated to the skylights is unknown
436	Air Force	DYESS AFB	TX	Daylighting	0	1,212	None	Minimize lighting energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	Project complete and paid off, SIR unknown, Simple payback 5.73yrs
437	Air Force	NELLIS AFB	NV	Daylighting	0	700	None	Minimize lighting energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	
438	Air Force	Nellis AFB, NV	NV	PV Power Purchase Agreement	231,627	115,814	Reduced peak demand reduces stress substation - lowers failure potential			Maximize cost effective use of available renewable resources	Likely Met	
439	Air Force	WHITEMAN AFB	MO	Construct Child Development Center	0	2,488	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	This was a \$7M MILCON Project Connected load = 67 Tons
440	Air Force	WHITEMAN AFB	MO	ESPC - 9 Facilities	0	5,385	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	ESPC thru DOE awarded to Johnson Controls, Inc. 145 Tons Connected Load
441	Air Force	WHITEMAN AFB	MO	Install GSHP in 2 Facilities	0	6,685	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	ARRA Project - Awarded March 10 2 facilities = 125 + 55 = 180 Tons
442	Air Force	WHITEMAN AFB	MO	Install GSHP in 4 Facilities	0	6,685	None	Minimize HVAC energy costs/consumption	Currently Met	Maximize cost effective use of available renewable resources	Currently Met	ARRA Project - Awarded March 10 4 facilities = 30 + 30 + 70 + 50 = 180 Tons
443	NSA	Fort George G. Meade	MD	Burgin Building Solar Photovoltaic Array (Designed to produce 15 KW of solar power)	Project not completed	Project not completed	N/A	"no goal"		Produce electricity for bulding 9824	Likely Met	Construction is scheduled to begin 5/1/2010 NSA's energy goals are to be compliant with mandated Executive Orders

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444	NSA	Fort George G. Meade	MD	Visitor Center Daylight Harvesting (5 tubular skylights)	0.00	0.00	N/A	"no goal"		Uses sunlight to naturally light or brighten Building 9800F	Currently Met	NSA's energy goals are to be compliant with mandated Executive Orders
445	NSA	Fort George G. Meade	MD	Visitor Center Solar Photovoltaic Array (Designed to produce 15 KW of solar power)	0.00	0.00	N/A	"no goal"		Produce electricity for building 9800F	Currently Met	NSA's energy goals are to be compliant with mandated Executive Orders
446	NSA	Fort George G. Meade	MD	Visitor Center Geothermal Heat Pumps (Eight 300 foot vertical wells)	0.00	0.00	N/A	"no goal"		Produce heat in the winter and cooling in the summer for building 9800F	Currently Met	NSA's energy goals are to be compliant with mandated Executive Orders
447	NSA	Fort George G. Meade	MD	South Campus Electrical Utility Plant Solar Photovoltaic Array (Designed to produce 90 KW of solar power)	Project not completed	Project not completed	N/A	"no goal"		Produce electricity for Building 9816	Likely Met	Construction is scheduled to begin 1/1/2013 NSA's energy goals are to be compliant with mandated Executive Orders
448	DeCA	Los Angeles AFB	CA	Install PV System, Lighting Retrofit	0.44	0.44	The solar PV system can provide approximately 5% of the annual facility electric consumption.	Estimated the system would annually produce 106 MWh.	Currently Met	Contributes	Currently Met	Provides about 5% of the stores annual consumption
449	DIA	Bolling AFB, Wahington	DC	Install 2 solar powered lights in Parking Lot								
450	TMA	Fort Detrick, MD	MD	Medical Waste Incinerator	24,197.00	24,197.00	on-site generation	The steam is used for sterilization, heat, other R&D applications	Currently Met	Allow incidental steam generated by the incinerator plant to enter the steam system	Currently Met	Ft. Detrick, MD

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451	WHS	Pentagon	VA	Pentagon Solar Farm (Sent to Ft. Huachuca in 4th QtrFY09) because HAZMAT facility will be built on this site.			Reduces grid demand, increases energy security					
452	WHS	Pentagon	VA	Pentagon HRP Solar Guard Shack			Reduces grid demand, increases energy security					
453	WHS	Pentagon	VA	Pentagon Solar Parking Lot Lights			Reduces grid demand, increases energy security					
454	WHS	Pentagon	VA	Pentagon Solar Hot Water			Reduces grid demand, increases energy security					

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## Congressional Relations

Ralph Dawn, Managing Director, [dawnr@gao.gov](mailto:dawnr@gao.gov), (202) 512-4400  
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## Public Affairs

Chuck Young, Managing Director, [youngc1@gao.gov](mailto:youngc1@gao.gov), (202) 512-4800  
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